

CHAPTER 2

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2.0 PROJECT DESCRIPTION

The purpose of the 2007 Air Quality Management Plan (AQMP) for the South Coast Air Basin (Basin) is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour ozone and PM_{2.5} air quality standards. The 2007 AQMP will be submitted to U.S. EPA as a SIP revision once it is approved by the District's Governing Board and the California Air Resources Board (CARB). The 2007 AQMP contains measures based on current technology assessments. Emission reduction commitments take into account technical feasibility, cost effectiveness, and current emission estimates. The key components of the 2007 AQMP are summarized later in this chapter.

2.1 INTRODUCTION

The areas within the jurisdiction of the South Coast Air Quality Management District (SCAQMD), in particular, the Basin, which includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino and Riverside counties, have the worst air quality problems in the nation. Though there have been significant improvements in air quality in the Basin over the last two decades, some ambient air quality standards are still exceeded relatively frequently and by a wide margin. As a result, substantial emission reductions are necessary for all areas within the SCAQMD's jurisdiction to attain and maintain all standards by the dates mandated by federal law.

The SCAQMD was created by the California legislature in 1977¹ as the public agency responsible for developing and enforcing air pollution control regulations in the Basin. The Lewis Air Quality Act (now known as the Lewis-Presley Air Quality Management Act) requires the SCAQMD to prepare and adopt an Air Quality Management Plan (AQMP) consistent with federal planning requirements. In 1977, amendments to the federal Clean Air Act (CAA) included requirements for submitting State Implementation Plans (SIPs) for non-attainment areas that fail to meet all federal ambient air quality standards (Health & Safety Code §40462). The federal CAA was amended in 1990 to specify attainment dates and SIP requirements for ozone, carbon monoxide (CO), nitrogen dioxide (NO₂) and particulate matter less than 10 microns (PM₁₀). The California Clean Air Act (CCAA), adopted in 1988, requires the SCAQMD to endeavor to achieve and maintain state ambient air quality standards for ozone, CO, sulfur dioxide (SO₂), and NO₂ by the earliest practicable date (Health & Safety Code §40910), and it established requirements to update the plan periodically.

2.1.1 BACKGROUND

The first AQMP was prepared and approved by the SCAQMD in 1979 and has been updated and revised a number of times. The CCAA requires a three-year plan review and update to the AQMP. The following bullet items summarize the main components of those updates and revisions:

¹ The Lewis-Presley Air Quality Management Act, 1976 Cal. State. ch. 324 (codified at H & S Code, Sections 40400 - 40540).

- In 1982, the AQMP was revised to reflect better data and modeling tools.
- In 1987, a federal court ordered the U.S. Environmental Protection Agency (U.S. EPA) to disapprove the 1982 AQMP because it did not demonstrate attainment of all national ambient air quality standards (NAAQS) by 1987 as required by the CAA. This, in part, led to the preparation of the 1989 AQMP.
- The 1989 AQMP was adopted on March 17, 1989, and was specifically designed to attain all NAAQS. This plan called for three “tiers” of measures as needed to attain all standards and relied on significant future technology advancement to attain these standards.
- In 1991, the SCAQMD prepared and adopted the 1991 AQMP to comply with the CCAA.
- In 1992, the 1991 AQMP was amended to add a control measure containing market incentive programs.
- In 1994, the SCAQMD prepared and adopted the 1994 AQMP to comply with the CCAA three-year update requirement and to meet the federal CAA requirement for an ozone SIP. The AQMP, as adopted in 1994, included the following:
 - ❑ all geographical areas under the jurisdiction of the SCAQMD (referred to here as the district), as opposed to the Basin (please see Figure 2-1.);
 - ❑ the basic control strategies remained the same although the three-tiered structure of control measures was replaced. Measures previously referred to as Tier I, II or III were replaced with short-/intermediate-term or long-term control measures;
 - ❑ updated and refined control measures carried over from 1991;
 - ❑ the federal post-1996 Rate-of-Progress demonstration;
 - ❑ Best Available Control Measure (BACM) PM10 Plan;
 - ❑ the ozone attainment demonstration plan;
 - ❑ amendments to the federal Reactive Organic Compound (ROC) Rate-of-Progress plan (also referred to as the volatile organic compound (VOC) Rate-of-Progress Plan);
 - ❑ Attainment Demonstration Plans for the federal PM10, nitrogen dioxide, and carbon monoxide air quality standards;
 - ❑ expanded use of market incentives;
 - ❑ new public outreach and education programs; and

- ❑ manufacturer-certified products and equipment.
- The 1997 AQMP was designed to comply with the three-year update requirements specified in the CCAA as well as to include an attainment demonstration for PM₁₀ as required by the federal CAA. Relative to ozone, the 1997 AQMP contained the following changes to the control strategies compared to the 1994 AQMP:
 - ❑ less reliance on transportation control measures (TCMs);
 - ❑ less reliance on long-term control measures that rely on future technologies as allowed under §182(e)(5) of the CAA; and
 - ❑ removal of other infeasible control measures and indirect source measures.



FIGURE 2-1
Southern California Air Basins’
Boundaries and SCAQMD Jurisdiction

- In 1999, the ozone plan portion of the 1997 AQMP was amended to address partial disapproval of the 1997 AQMP by the U.S. EPA and a settlement of litigation by environmental groups challenging the 1997 AQMP to provide the following:
 - ❑ greater emission reductions in the near-term than would occur under the 1997 AQMP;

- ❑ early adoption of the measures that would otherwise be contained in the next three-year update of the AQMP; and
 - ❑ additional flexibility relative to substituting new measures for infeasible measures and recognition of the relevance of cost effectiveness in determining feasibility.
- In April 2000, U.S. EPA approved the 1999 ozone SIP amendment to the 1997 plan. The 1999 Amendment in part addressed the State's requirements for a triennial plan update.
- The 2003 AQMP was adopted by the SCAQMD in August 2003. The 2003 AQMP has not yet been approved by the U.S. EPA as part of the SIP. The 2003 AQMP addressed the following control strategies:
 - ❑ attaining the federal PM₁₀ ambient air quality standard and the federal one-hour ozone standard;
 - ❑ 1997/1999 control measures not yet implemented;
 - ❑ discussion regarding credit/incentive programs and their role in achieving overall emission reduction targets;
 - ❑ revisions to the Post-1996 VOC Rate-of-Progress Plan and SIP for CO;
 - ❑ initial analysis of emission reductions necessary to attain the PM_{2.5} and eight-hour ozone standards;
 - ❑ overview of state and federal planning requirements; and
 - ❑ tracking of emission increases from a number of SCAQMD programs including New Source Review, Priority Reserve, etc.

2.2 PROJECT LOCATION

The SCAQMD has jurisdiction over an area encompassing 10,473 square miles. The area consists of the four-county Basin, and the Riverside County portions of the Salton Sea Air Basin (SSAB) and the Mojave Desert Air Basin (MDAB), referred to hereafter as the district. The 6,745 square-mile Basin, which is a sub-area of the SCAQMD's jurisdiction, includes all of Orange County, and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is bounded by the Pacific Ocean to the west, and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Riverside County portion of the SSAB and MDAB is bounded by the San Jacinto Mountains in the west, and spans eastward up to the Palo Verde Valley. The federal non-attainment area (known as the Coachella Valley Planning Area) is a sub-region of Riverside County and the SSAB, which is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 2-1).

2.3 PROGRESS IN IMPLEMENTING THE 2003 AQMP

2.3.1 SCAQMD'S ACTIONS

While the 2003 AQMP has not been approved by U.S. EPA into the SIP, the SCAQMD continues to implement the 2003 AQMP. Progress in implementing the 2003 AQMP can be measured by the number of control measures that have been adopted as rules and the resulting tons of pollutants targeted for reduction. Emission reduction commitments and reductions achieved in 2010 are based on the emissions inventory from the 2003 AQMP. Since October 2002, sixteen control measures or rules have been adopted or amended by the SCAQMD through June 2006. Table 2-1 lists the SCAQMD's 2003 AQMP short-term commitment and the control measures or rules that were adopted through June 2006. The primary focus of the SCAQMD's efforts had been the adoption and implementation of VOC control measures. As shown in Table 2-1, implementation of control measures adopted by the SCAQMD will achieve 29.2 tons per day of VOC emission reductions, 2.4 tons of PM₁₀ emission reductions, 7.1 tons of NO_x emission reductions, and 3.8 tons of SO_x emission reductions. Based on the updated 2002 emissions inventory, adopted rules as of June 2006, and the 2007 AQMP growth assumptions, the projected VOC and NO_x emissions from District sources in 2010 will be 137 and 84 tons per day, respectively, representing 10 to 12 tons per day below the SCAQMD's emission reduction commitment in the 2003 AQMP.

TABLE 2-1

**Rules and Regulations Adopted by District Since Adoption of 2003 AQMP
(October 2002 through June 2006^a)**

Control Measure (Rule)	Title	SIP Commitment (tons/day)	Emission Reductions Achieved Through Rule Implementation (tons/day)	Adoption Date
FUG-05 (I) (Rule 1173)	Fugitive Emission Sources at Petroleum Facilities and Chemical Plants (VOC)	0.6	0.6	2002
WST-02 (Rule 1133.2)	Co-Composting Operations (VOC)	1.2	1.2	2003
CTS-07 ^f (Rule 1171)	Architectural Coatings; Solvent Cleaning Operations (VOC)	8.5	8.5	2003
CTS-10 (I) (Rule 1113)	Architectural Coatings (VOC)	1.0	4.5 0.9	2003/ 2006
FUG-05 (II) (Rule 1148.1)	Oil and Gas Production Wells (VOC)	1.4	1.3	2004
WST-01 (Rule 1127)	Livestock Waste (VOC)	4.8	6.0	2004

TABLE 2-1 (concluded)

Control Measure (Rule)	Title	SIP Commitment (tons/day)	Emission Reductions Achieved Through Rule Implementation (tons/day)	Adoption Date
CTS-10 (II) (Rule 1145)	Plastic, Rubber, and Glass Coatings (VOC)	1.0	0.9	2004
PRC-7 (I)	Industrial Process Operations (VOC)	1.0	^b	^b
PRC-07 (II) (Rule 1151)	Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations (VOC)	1.0	4.2	2005
CTS-10 (III) (Rule 1107)	Metal Parts and Products Coatings (VOC)	1	1.1	2005
	Total VOC	21.5	29.2^c	
CMB-09 ^f (Rule 1105.1)	Fluid Catalytic Cracking Units (PM10)	0.5	0.5	2003
BCM-07 ^f (Rule 403/Rule 1186)	Fugitive Dust/PM10 Emissions From Paved and Unpaved Roads, and Livestock Operations (PM10)	--	1.0	2004
PRC-03	Restaurant Operations (PM10)	1.0	^d	^d
BCM-08 (Rule 1156/Rule 1157)	Cement Manufacturing and Aggregate and Related Operations (PM10)	0.7	0.9	2005
	Total PM10	2.2	2.4	
CMB-10 ^{f,g} (RECLAIM)	Regional Clean Air Incentives Market (NOx)	3.0	7.1	2005
MSC-05	Truck Stop Electrification	(2.1 ^e)	--	2005
	Total NOx	3	7.1	
CMB-07	Refinery Flares (SOx)	2.1	3.8	2005
	Total SOx	2.1	3.8	

^a SCAQMD summer planning emissions in 2010 (rounded to the nearest whole number), based on 2003 SIP inventory.

^b SIP commitment for this measure was achieved from Rule 1113 reductions of 4.5 tons/day which was in excess of one ton/day commitment under CTS-10(I).

^c The excess reductions will be accounted toward 182(e)(5) reduction commitment.

^d Due to the infeasibility of available control technologies, this measure is carried over to 2007 AQMP and the reduction commitment is fulfilled through BCM-07.

^e AQMD's commitment of 2.1 tons/day of NOx was achieved through CARB's truck idling regulation with a total reduction of 23.7 tons/day. Not accounted toward AQMD's commitment.

^f Rules which have been approved by U.S. EPA.

^g Total reductions are 7.7 tons/day to be achieved by 2011.

2.3.2 CALIFORNIA AIR RESOURCES BOARD (CARB) ACTIONS

Table 2-2 lists the control measures committed to in the 2003 AQMP that have been adopted (either entirely or partially) by CARB since 2002. To date, CARB has achieved an estimated combined VOC and NOx reductions for 2010 of 51 tons per day. Compared to the short-term commitment in the 2003 AQMP of 168 tons per day (low end), CARB's emission reduction represents 30 percent of CARB's combined VOC and NOx commitment for short-term measures.

2.4 CONTROL MEASURE NUMBER

Each control measure is identified by a control measure number. The three-letter designation, "CTS" represents the abbreviation for a source category or specific programs. For example "CTS" is an abbreviation for "Coatings and Solvents." The following provides a description of the abbreviations for each of the measures.

- CTS Coatings and Solvents
- CMB Combustion Sources
- FUG Fugitive Emissions
- MCS Multiple Component Sources
- BCM Best Available Control Measures for Fugitive Dust Sources
- FLX Compliance Flexibility Programs
- EGM Emission Growth Management
- MOB Mobile Source Programs

The following are descriptions of abbreviations for mobile source control measures SCAQMD is proposing to State and federal agencies for inclusion in the 2007 AQMP.

- ONRD On-Road Mobile Source Control Measures
- OFFRD Off-Road Mobile Source Control Measures
- CONS Consumer Products

TABLE 2-2
State Measures Adopted Since 2003 AQMP

Strategy	Name	Adopted Date	ROG	ROG	NOx	NOx
			Commitment (tpd) ¹	Achieved By 2010 (tpd)	Commitment (tpd) ¹	Achieved By 2010 (tpd)
NEAR TERM CONTROL MEASURES						
LT/MED-DUTY-1 (ARB)	Replace or Upgrade Emission Control Systems on Existing Passenger Vehicles	In Progress	0-20	TBD	0-20	TBD
LT/MED-DUTY-2 (BAR)	Improve Smog Check to Reduce Emissions from Existing Passenger and Cargo Vehicles ²	2003	5.6-5.8	5.6	8.0-8.4	10
ON-RD HVY-DUTY-1 (ARB)	Augment Truck and Bus Highway Inspections with Community-Based Inspections	In Progress	0-0.1	TBD	0	0
ON-RD HVY-DUTY-2 (ARB)	Capture and Control Vapors from Gasoline Cargo Tankers	In Progress	4-5	TBD	0	0
ON-RD HVY-DUTY-3 (ARB)	Pursue Approaches to Clean Up the Existing and New Truck/Bus Fleet ³	2003-2006 (In Progress)	1.4-4.5	2.8-2.9	16-21	13-16
OFF-RD CI-1 (ARB)	Pursue Approaches to Clean Up the Existing Heavy-Duty Off-Road Equipment Fleet (Compression Ignition Engines) – Retrofit Contrl	In Progress	2.3-7.8	TBD	8-10	TBD
OFF-RD CI-2 (ARB)	Implement Registration and Inspection Program for Existing Heavy-Duty Off-Road Equipment to Detect Excess Emissions (Compression Ignition Engines)	In Progress	NQ	TBD	NQ	TBD
OFF-RD LSI-1 (ARB)	Set Lower Emission Standards for New Off-Road Gas Engines (Spark Ignited 25 hp and Greater) ⁴	Combined with OFF-RD LSI-2	0	0	0.8	---
OFF-RD LSI-2 (ARB)	Clean Up Off-Road Gas Equipment Through Retrofit Controls and New Emission Standards (Spark-Ignition Engines 25 hp and Greater) ⁴	2006	0.8-2.0	2.6	2-4	2.6
SMALL OFF-RD-1 (ARB)	Set Lower Emission Standards for New Handheld Small Engines and Equipment (Spark Ignited Engines Under 25 hp such as Weed Trimmers, Leaf Blowers, and Chainsaws) ⁵	Combined with SMALL-OFF-RD-2	1.9	---	0.2	---
SMALL OFF-RD-2 (ARB)	Set Lower Emission Standards for Non-Handheld Small Engines and Equipment (Under 25 hp e.g., as Lawnmowers) ⁵	2003	6.3-7.4	7.7	0.6-1.9	1.3

TABLE 2-2 (cont.)

Strategy	Name	Adopted Date	ROG	ROG	NOx	NOx
			Commitment (tpd) ¹	Achieved By 2010 (tpd)	Commitment (tpd) ¹	Achieved By 2010 (tpd)
MARINE-1 (ARB)	Pursue Approaches to Clean Up the Existing Harbor Craft Fleet – Cleaner Engines and Fuels ⁶	In Progress	0.1	TBD	2.7	0.4
MARINE-2 (ARB)	Pursue Approaches to Reduce Land-Based Port Emissions – Alternative Fuels, Cleaner Engines, Retrofit Controls, Electrification, Education Programs, Operational Controls ⁷	In Progress	0.1	TBD	0.1	2.8
FUEL-1 (ARB)	Set Additives Standards for Diesel Fuel to Control Engine Deposits		NQ	TBD	NQ	TBD
FUEL-2 (ARB)	Set Low-Sulfur Stds for Diesel Fuel for Trucks/Buses, Off-Rd Equip., and Stationary Engines	2003	Enabling	Enabling	Enabling	Enabling
CONS-1 (ARB)	Set New Consumer Products Limits for 2006	2004	2.3	2	0	0
CONS-2 (ARB)	Set New Consumer Products Limits for 2008-2010	In Progress	8.5-1.5	TBD	0	0
FVR-1 (ARB)	Increase Recovery of Fuel Vapors from Aboveground Storage Tanks	In Progress	0-0.1	TBD	0	0
FVR-2 (ARB)	Recover Fuel Vapors from Gasoline Dispensing at Marinas	In Progress	0-0.1	TBD	0	0
FVR-3 (ARB)	Reduce Fuel Permeation Through Gasoline Dispenser Hoses	In Progress	0-0.7	TBD	0	TBD
PEST-1 (DPR)	Existing Pesticide Strategy	---	Baseline	Baseline	NA	NA
TOTAL FOR NEAR-TERM CONTROL MEASURES			33.3-72.9	20.7-20.8	38.4-69.1	30.1-33.1
ADDITIONAL NEAR-TERM MEASURES						
(ARB)	Achieve Further Emission Reductions from On-Road and Off-Road Mobile Sources and Consumer Products	2005-2008	97 ⁸		---	

1. Tons/day, based on CARB's summer planning emission inventory for the 2003 South Coast SIP.
2. Includes benefits from test only direction and truck loaded mode testing only.
3. Includes benefits from solid waste collection vehicles, chip reflash, engine manufacturer diagnostics (EMD), idling limits, heavy duty on-board diagnostics (OBD), new truck idling, in-use testing, and on-road public fleets.
4. OFF-RD LSI-1/LSI-2 adopted in one board action and achieved reductions are combined and shown under OFF-RD LSI-2. The amount of emission reductions shown under ROG achieved is reflective of a combined 2.6 tpd ROG + NOx.
5. SMALL OFF-RD-1/OFF-RD-2 adopted in one board action and achieved reductions are combined and shown under OFF-RD-2.
6. Reductions shown reflect implementation of CARB's low sulfur diesel fuel rule for harbor craft adopted in 2004.
7. Reductions shown reflect implementation of CARB's statewide cargo handling equipment rule adopted in 2005.
8. Shown as combined ROG and NOx

2.5 PROPOSED CONTROL STRATEGY

The overall control strategy for the 2007 AQMP is designed to meet applicable federal and state requirements, including attainment of all ambient air quality standards. This is the first AQMP to demonstrate attainment with the federal PM_{2.5} ambient air quality standard. The focus of the latest AQMP is to demonstrate attainment of the federal PM_{2.5} ambient air quality standard by 2015 and the federal eight-hour ozone standard by 2024 while making expeditious progress toward attainment of state standards. The proposed strategy, however, does not attain the previous federal one-hour ozone standard by 2010 as previously required prior to the recent change in federal regulations.

The South Coast Air Basin is classified as Severe 17 for the eight-hour ozone standard with an attainment date of June 2021, while the portion of the SSAB under the SCAQMD's jurisdiction (Coachella Valley Planning Area) is classified as serious, with an attainment date of June 2013. Unlike the eight-hour ozone standard, area designations for the PM_{2.5} standard do not have a classification system (e.g., serious, severe) and are designated as attainment, non-attainment, or unclassifiable. For the Basin and the portions of the SSAB under the SCAQMD's jurisdiction, the regions are designated non-attainment and unclassifiable, respectively.

A "bump-up" request is included as part of the 2007 AQMP and will be made for the South Coast Air Basin to the U.S. EPA to be designated as an "extreme" non-attainment area with a possible extended attainment date of 2024 for ozone as well as for Coachella Valley to be designated as "severe-15" with an extended attainment date of 2018. The 2007 AQMP relies upon the most recent planning assumptions and the best available information such as CARB's latest emission factors (EMFAC) for the on-road mobile source emissions inventory, CARB's off-road model for the off-road mobile source emission inventory, latest point source and improved area source inventories as well as the use of new episodes and air quality modeling analysis, and Southern California Association of Governments' (SCAG's) forecast assumptions based on its modified 2004 Regional Transportation Plan.

The proposed control measures in the 2007 AQMP are based on implementation of all feasible control measures through the application of available technologies and management practices as well as development and implementation of advanced technologies and control methods. These measures rely on proposed actions to be taken by several agencies that currently have the statutory authority to implement such measures. Similar to the 2003 AQMP approach, the SIP commitment is to implement each control measure in a specified timeframe. Each agency is also committed to achieving a total emission reduction target with the ability to substitute for control measures deemed infeasible, so long as equivalent reductions are met by other means. These measures are also designed to satisfy the federal Clean Air Act requirement of reasonably available control technologies [Section 172(c)], and the California Clean Air Act requirement of Best Available Retrofit Control Technologies (BARCT) [Health and Safety Code Section 40919, Subsection C].

To ultimately achieve the PM_{2.5} and eight-hour ozone ambient air quality standards and demonstrate attainment, significant additional short- and mid-term as well as long-term emissions reductions will be necessary from sources including those primarily under the

jurisdiction of CARB (e.g., on-road motor vehicles, off-road equipment, and consumer products) and U.S. EPA (e.g., aircraft, ships, trains, and pre-empted off-road equipment). Without an adequate and fair-share level of reductions from all sources, the emissions reduction burden would unfairly be shifted to stationary sources that are already stringently regulated. Moreover, the SCAQMD will continue to use its available regulatory authority to further control mobile source emissions where federal or state action does not meet regional needs.

2.6 2007 AQMP CONTROL MEASURES

The 2007 AQMP control measures consist of four components: 1) the SCAQMD's Stationary and Mobile Source Control Measures; 2) CARB's Proposed State Strategy; 3) District's Proposed additional State and Federal Control Measures; and 4) Regional Transportation Strategy and Control Measures provided by SCAG. Overall, the 2007 AQMP includes 31 stationary and 30 mobile source measures. These measures primarily rely on the traditional command-and-control approach, facilitated by market incentive programs, as well as advanced technologies expected to be implemented by 2015 (for PM_{2.5}) and 2024 (for eight-hour ozone). A summary of these measures is provided in the following subsections.

2.6.1 SCAQMD'S STATIONARY AND MOBILE SOURCE SHORT – AND MID-TERM CONTROL MEASURES

The stationary source control measures presented in the 2007 AQMP would further reduce emissions from both point sources (permitted facilities) and area sources (generally small and non-permitted). The proposed control strategy for stationary sources under the SCAQMD's jurisdiction include implementing the remaining revised and partially implemented measures from the 2003 AQMP and new measures that are deemed feasible to provide additional reduction opportunities. In addition, to foster further technology advancement, long-term measures are also included to achieve additional reductions from stationary sources based on implementation and accelerated penetration of advanced technologies. Furthermore, in light of significant reductions needed for PM_{2.5} and ozone attainment demonstrations, the SCAQMD will expand its regulatory programs to mobile sources where the SCAQMD has existing legal authority and is evaluating the possibility of additional limited authority for cost-effective local controls. The control measures to be implemented by the SCAQMD are listed in Table 2-3.

The SCAQMD's control strategy for stationary and mobile sources also incorporates the following concepts: 1) facility modernization; 2) energy efficiency and conservation; 3) good management practices; 4) market incentives/compliance flexibility; 5) area source programs; 6) emission growth management; and 7) mobile source programs. Table 2-3 provides a listing of SCAQMD's proposed control measures under each of the Plan control approaches.

The 2007 AQMP includes 30 short-term and mid-term stationary and seven mobile source control measures proposed for SCAQMD implementation. In order to demonstrate attainment by 2015 for PM_{2.5} and 2024 for ozone, emission reductions needed for attainment must be in place by 2014 and 2023 respectively. Table 2-4 provides a listing of the SCAQMD short-term and mid-term control measures in the 2007 AQMP for which the emission reductions are quantified. These measures are estimated to achieve a total of 6.8 tons per day of NO_x, 3 tons

per day of SO_x, 10.4 tons per day of VOC, and 1.5 tons per day of PM_{2.5} emission reductions by 2014 and have proposed rule adoption schedules between 2007 and 2010 with implementation dates between 2008 and 2023. The 2023 reductions from these measures are estimated to be 19.3 tons per day of VOC, 9.2 tons per day of NO_x, 3 tons per day of SO_x, and 3.3 tons per day of PM_{2.5} reductions. Table 2-5 presents the SCAQMD's remaining control measures in the 2007 AQMP which are either not quantified at this time due to data limitations or do not result in direct emission benefits (e.g., Urban Heat Island).

TABLE 2-3
SCAQMD's Proposed Control Measures

Coatings and Solvents	
Number	Title
CTS-01	Emission Reductions from Lubricants
CTS-02	Clean Coatings Certification Program
CTS-03	Consumer Product Certification and Emission Reductions from Use of Consumer Products at Institutional and Commercial Facilities (VOC)
CTS-04	Emission Reductions from the Reduction of VOC Content of Consumer Products Not Regulated by the State Board
Petroleum Operations and Fugitive VOC Emissions	
Number	Title
FUG-01	Improved Leak Detection and Repair
FUG-02	Emission Reductions from Gasoline Transfer and Dispensing Facilities
FUG-03	Further Emission Reductions from Cutback Asphalt
FUG-04	Emission Reductions from Pipeline and Storage Tank Degassing
Combustion Sources	
Number	Title
CMB-01	NO _x Reductions from Non-RECLAIM Ovens, Dryers and Furnaces
CMB-02	Further SO _x Reductions for RECLAIM [SO _x]
CMB-03	Further NO _x Reductions from Space Heaters
CMB-04	Natural Gas Fuel Specifications (All Pollutants)
Fugitive Dust Sources	
Number	Title
BCM-01	PM Control Devices (Baghouses, Wet Scrubbers, Electrostatic Precipitators, and Other Devices)
BCM-02	PM Emission Hot Spots – Localized Control Program
BCM-03	Emission Reductions from Wood Burning Fireplaces and Woodstoves
BCM-04	Additional PM Emission Reductions from Rule 444 – Open Burning [PM]
BCM-05	Emission Reductions from Under-Fired Charbroilers
Multiple Component Sources	
Number	Title
MCS-01	Facility Modernization
MCS-02	Urban Heat Island (All Pollutants)

TABLE 2-3 (concluded)

SCAQMD's Proposed Control Measures

Multiple Component Sources (Cont.)	
MCS-03	Energy Efficiency and Conservation
MCS-04	Emissions Reduction from Greenwaste Composting
MCS-05	Emission Reductions from Livestock Waste
MCS-06	Improved Startup, Shutdown, and Turnaround Procedures
MCS-07	Application of all Feasible Measures (All Pollutants)
MCS-08	Emission Charges of \$5,000 per Ton for Stationary Sources with Potential to Emit Over 10 Tons per Year
Compliance Flexibility Programs	
Number	Title
FLX-01	Economic Incentive Programs (All Pollutants)
FLX-02	Petroleum Refinery Pilot Program
Emission Growth Management	
Number	Title
EGM-01	Emission Reductions from New or Redevelopment Projects (NOx, VOC, and PM2.5)
EGM-02	Emission Budget and Mitigation for General Conformity Projects (All Pollutants)
EGM-03	Emissions Mitigation at Federally-Permitted Projects (All Pollutants)
SCAQMD's Mobile Source Control Measures	
Number	Title
MOB-01	Mitigation Fee Program for Federal Sources (All Pollutants)
MOB-02	Expanded Exchange Program (All Pollutants)
MOB-03	Backstop Measure for Indirect Sources of Emissions from Ports and Port-Related Facilities (All Pollutants)
MOB-04	Emissions Reduction from Carl Moyer Program (NOx, PM2.5)
MOB-05	AB 923 Light-Duty Vehicle High-Emitter Identification Program
MOB-06	AB 923 Medium-Duty Vehicle High-Emitter Identification Program
MOB-07	Concurrent Reductions from Global Warming Strategies

TABLE 2-4

**SCAQMD's Short-Term and Mid-Term Stationary AQMP Control Measures
with Quantified Emission Reduction Estimates**

Control Measure No.	TITLE	Reduction Target ⁽¹⁾ (tons/day)			
Remaining 2003 AQMP Revision Control Measure		VOC	NOx	PM2.5	SOx
FUG-02	Emission Reductions from Gasoline Transfer and Dispensing Facilities	3.7/4.0	-	-	-
BCM-03	Emission Reductions from Wood-Burning Fireplaces and Wood Stoves	-	-	0.7/0.7	-
New Control Measures		-	-	-	-
CTS-01	Emission Reductions from Lubricants	1.8/2.0	-	-	-
CTS-03	Consumer Product Certification and Emission Reductions from Use of Consumer Products at Institutional and Commercial Facilities	2.1/2.2 ²	-	-	-
CTS-04	Emission Reductions from the Reduction of VOC Content of Consumer Products Not Regulated by the State Board	5.8/6.0 ²			
CMB-01	NOx Reduction from Non-RECLAIM Ovens, Dryers and Furnaces	-	3.5/4.1	-	-
CMB-02	Further SOx Reduction for RECLAIM	-	-	-	3.0/3.0
CMB-03	Further NOx Reductions from Space Heaters	-	0.8/1.1	-	-
MCS-01	Facility Modernization	2.0/9.2	1.6/2.2	0.4/1.7	-
MCS-05	Emission Reductions from Livestock Waste	0.8/0.6	-	-	-
FLX-02	Petroleum Refinery Pilot Program	0.7/1.6	-	0.4/0.4	-
EGM-01	Emission Reductions from New and Redevelopment Projects	0.0/0.6	0.0/0.8	0.0/0.5	-
MOB-04	Emission Reductions from Carl Moyer Program ⁽³⁾	-	10.1/13.4	0.3/0.4	-
MOB-05	AB923 Light-Duty Vehicle High-Emitter Identification Program	0.8/0.7	0.4/0.4		
MOB-06	AB923 Medium-Duty Vehicle High-Emitter Identification Program	0.5/0.6	0.5/0.6		
Totals		10.4/19.3	6.8/9.2	1.5/3.3	3.0/3.0

¹ The emission reduction estimates are based on the 2014 annual average inventory and 2023 planning inventory in the 2007 AQMP. The actual reductions are subject to change during the rulemaking based on the latest available emission inventory data.

² Emission reduction from this measure is not reflected in the total reductions in this table pending CARB's future rulemaking.

³ Emission reductions from the past projects under the Carl Moyer Program are reflected in the baseline adjustments. Emission reductions from future projects are reflected under the proposed mobile source control measures. Reductions from past and future projects are not reflected in the total reductions in this table.

TABLE 2-5

**SCAQMD's Short-Term and Mid-Term Stationary and Mobile Source AQMP
Control Measures Without Emission Reduction Estimates**

Control Measure No.	Title
Remaining 2003 AQMP Revision Control Measures	
MCS-02	Urban Heat Island [All Pollutants]
CMB-04	Natural Gas Fuel Specifications [NO _x]
BCM-05	Emission Reductions from Under-Fired Charbroilers]
MCS-04	Emissions Reduction from Green Waste Composting [VOC, PM _{2.5}]
FLX-01	Economic Incentive Programs [All Pollutants]
MOB-01	Mitigation Fee for Federal Sources [All Pollutants]
MCS-08	Emission Charges of \$5,000 per Ton Stationary Source with Potential to Emit Over 10 Tons per Year [VOC, NO _x]
New Control Measures	
CTS-02	Clean Coatings, Certification Program [VOC]
CTS-03	Consumer Products Certification and Emission Reductions from Use of Consumer Products at Institutional and Commercial Facilities [VOC]
CTS-04	Emission Reductions from the Reduction of VOC Content of Consumer Products Not Regulated by the State Board [VOC]
FUG-01	Improved Leak Detection and Repair [VOC]
FUG-03	Further Emission Reductions from Cutback Asphalt [VOC]
FUG-04	Emission Reductions from Pipeline and Storage Tank Degassing [VOC]
BCM-01	PM Control Devices (Baghouses, Wet Scrubbers, Electrostatic Precipitators, and Other Control Devices [PM _{2.5}]
BCM-02	PM Emission Hot Spots – Localized Control Program [PM]
BCM-04	Additional PM Emission Reductions from Rule 444 - Open Burning [PM]
MCS-03	Energy Efficiency and Conservation [NO _x]
MCS-05	Emission Reductions from Livestock Waste [VOC]
MCS-06	Improved Start-up, Shut-down & Turnaround Procedures [All Pollutants]
MCS-07	Application of All Feasible Control Measures [All Pollutants]
EGM-02	Emission Budgets and Mitigation for General Conformity Projects [All Pollutants]
EGM-03	Emissions Mitigation at Federally Permitted Projects [All Pollutants]
MOB-02	Expanded Exchange Program [All Pollutants]
MOB-03	Backstop Measures for Indirect Sources of Emissions from Ports and Port-Related Facilities [All Pollutants]
MOB-05	AB 923 Light-Duty Vehicle High-Emitter Identification Program
MOB-06	AB 923 Medium-Duty Vehicle High-Emitter Identification Program
MOB-07	Concurrent Reductions from Global Warming Strategies

Stationary Source Control Methods

Stationary source control measures rely on a variety of control technologies and management practices, as identified in Table 2-6. Control technologies vary according to the source type and pollutant being controlled and generally include a process or physical modification such as product reformulation, installation of air pollution control equipment, etc. In addition, management practices to reduce emissions may include administrative changes such as improved leak detection techniques, inspection and maintenance programs, etc.

The following subsections briefly summarize the SCAQMD's stationary and mobile source control measures. For additional information, Appendix IV-A of the 2007 AQMP provides detailed descriptions for the SCAQMD's stationary and mobile source control measures. Overall, eight control measures originally contained in the 2003 AQMP have been updated or revised for inclusion into the 2007 AQMP. In addition, twenty four new measures are incorporated in the 2007 AQMP based on replacement of the SCAQMD's long-term reduction measures from the 2003 AQMP with more defined control measures of development of new control measures.

2.6.1.1 Coatings and Solvents

CTS-01 – EMISSION REDUCTIONS FROM INDUSTRIAL LUBRICANTS: This control measure would reduce VOC emissions from industrial lubricants, a category under solvent operations, over a defined implementation period. Lubricants are used by various companies in the district including, but not limited to, machine shops, auto rebuilders, and auto parts manufacturers. Lubricants are believed to emit a significant amount of VOC emissions, as many lubricant compounds consist of at least 50 percent VOC solvents. It is important to note that there are low-emitting alternatives to petroleum-based lubricants available, including synthetics, semi-synthetics, and vegetable oils. The reduction requirements may apply not only to the end user, but may also be imposed at the point of sale.

CTS-02 - CLEAN COATING CERTIFICATION PROGRAM: VOC content in various industrial coatings has been regulated for many years. Many compliant products are significantly lower than the current rule limits. This measure is designed to encourage and to recognize supercompliant products. This proposed control measure would implement an ultra-low VOC content certification program for coatings similar to the certification program for the ultra-low VOC solvents under Rule 1171 or Rule 1122. The SCAQMD's certification can be an effective marketing tool that would encourage manufacturers to voluntarily lower the VOC content limits of their coatings below the current regulatory requirements. This control measure would incorporate a Clean Air Coating Certification through amendments to existing rules under Regulation II – Permits, and Regulation XI – Source-Specific Standards, as well as be considered in any future regulatory development. The SCAQMD will explore the feasibility of a voluntary program, as well as mandatory participation through source-specific rules. This method of control will include public education, outreach, and various marketing elements to help provide incentives to manufacturers and create consumer awareness and demand.

TABLE 2-6
Stationary Source Control Methods

Source Category	Control Method
Coatings and Solvents	<ul style="list-style-type: none"> • Reformulation • Higher Transfer Efficiency • Process Modifications and Improvements • Add-On Controls • Alternative Coating and Solvent Application Methods • Improved Housekeeping Practices • Market Incentives
Petroleum Operations and Fugitive VOC Emissions	<ul style="list-style-type: none"> • Process Modifications and Improvements • Add-On Controls Systems • Enhanced Inspection and Maintenance • Improved Vapor Recovery Systems • Good Management Practices • Market Incentives
Combustion Sources	<ul style="list-style-type: none"> • Add-On Controls • Process Modifications and Improvements • Improved Energy Efficiency • Market Incentives
Fugitive Dust Sources	<ul style="list-style-type: none"> • Road Dust Suppression • Watering or Revegetation of Disturbed Surface Areas • Chemical Stabilization of Unpaved Areas • Track-Out Prevention • Reduced Vehicular Speeds on Unpaved Roads • Add-On Controls for Fugitive Dust
Multiple Component Sources	<ul style="list-style-type: none"> • Process Modifications and Improvements • Add-On Controls • Best Management Practices • Best Available Control Technology • Market Incentives • Energy Efficiency and Conservation Mitigative Fees
Compliance Flexibility Programs	<ul style="list-style-type: none"> • Compliance Flexibility to Lower Costs • Promotion of Early Reductions • Incentivize Clean Technologies • Investment in Clean Technologies • Market Incentives
Emission Growth Management	<ul style="list-style-type: none"> • Mitigate Emission Increases

CTS-03 – CONSUMER PRODUCT CERTIFICATION AND EMISSION REDUCTIONS FROM USE OF CONSUMER PRODUCTS AT INSTITUTIONAL AND COMMERCIAL FACILITIES:

Consumer products are defined under the California Health and Safety Code as chemically formulated products used by institutional and household consumers. This control measure would reduce VOC emissions from consumer products used at commercial and institutional facilities through development of new rules to establish VOC certification programs and by adopting usage limitations or prohibition of use for consumer products other than ultra low- or zero-VOC products at high volume commercial and institutional facilities.

CTS-04 – EMISSION REDUCTIONS FROM THE REDUCTION OF VOC CONTENT OF CONSUMER PRODUCTS NOT REGULATED BY THE STATE BOARD:

Consumer Products include a broad range of products that are regulated by CARB in the State of California. However, local Air Pollution Control Districts may develop requirements for consumer products that are not regulated by ARB, such as paint thinners. This control measure would seek to reduce VOC emissions from unregulated lacquer and paint thinners sold as consumer products by establishing a VOC content limit for each of those categories.

2.6.1.2 Petroleum Operations and Fugitive VOC Emissions

FUG-01 – IMPROVED LEAK DETECTION AND REPAIR: Proposed Control Measure FUG-01 affects a variety of VOC emissions sources including, but not limited to, oil and gas production facilities, petroleum refining and chemical products processing, storage and transfer facilities, marine terminals, and other sources, where VOC emissions occur from fugitive leaks in piping components, wastewater system components, and process and storage equipment leaks. Operators at most of these facilities are required under SCAQMD and federal rules to maintain a leak detection and repair (LDAR) program that involves individual screening of all of their piping components and periodic inspection programs of equipment to control and minimize VOC emissions. This measure seeks to enhance the effectiveness of the existing LDAR program by taking advantage of the latest technology, called optical gas imaging (Smart LDAR), using an infrared camera that readily detects and displays an image of a VOC leak in a manner that is less time consuming and labor intensive than existing detection systems. The control measure would be implemented in two phases: Phase I would consist of a pilot program, followed by Phase II, during which full implementation would be expected. There are no emission reductions quantified for this control measure.

FUG-02 – EMISSION REDUCTIONS FROM GASOLINE TRANSFER AND DISPENSING FACILITIES:

This proposed control measure applies to all gasoline dispensing facilities (GDF) in the district. The proposed measure would reduce VOC and toxic emissions from GDF operations by improving the implementation of the CARB enhanced vapor recovery (EVR) regulation. One proposed method of control includes improving the functions of the in-station diagnostic (ISD) to provide early alerts of vapor recovery degradation and allow preventative repairs. Another method of control would redefine the function of the reset button of the ISD to allow dispensing of gasoline only after all the defective components of the vapor recovery system are repaired. A third method of control includes installing a “shutdown” mechanism in the fuel line to stop fueling if the fueling flow rate drops below the system

certification standards, which may cause vapor recovery failure. The complete implementation of the EVR will achieve a 98 percent control efficiency of GDF emissions.

FUG-03 – FURTHER EMISSION REDUCTIONS FROM CUTBACK ASPHALT: The purpose of this proposed control measure is to reduce emissions from asphalt paving applications by limiting the use of cutback asphalt and/or replacing it with emulsified asphalt. U.S. EPA Region 9 noted that SCAQMD Rule 1108, "Cutback Asphalt," does not contain reasonable available control technology (RACT) for asphalt paving (i.e. seasonal and usage limitations). U.S. EPA recommended staff to consider this option in the 2007 AQMP. In the SCAQMD's RACT submittal to EPA², a commitment was made to evaluate the potential for limiting the use of cutback asphalt. This control measure is intended to fulfill this commitment.

FUG-04 – EMISSION REDUCTIONS FROM PIPELINE AND STORAGE TANK DEGASSING: The purpose of this proposed control measure is to reduce VOC emissions from pipeline and storage tank degassing and cleaning by requiring the vapor space exhaust to be vented to an air pollution control device that limits the exhaust concentration. The source category would be expanded to include previously unregulated aboveground storage tanks with capacities less than 19,815 gallons and pipeline degassing. The Reid vapor pressure limit for liquids subject to the rule would also be reduced. The same control devices used for tank degassing would be applicable to the expanded category sources. This control measure would affect refineries, chemical plants, gasoline stations, and an unknown number of new facilities in the paint, solvent, adhesive, and ink manufacturing industries.

2.6.1.3 Combustion Sources

CMB-01 – NO_x REDUCTIONS FROM NON-RECLAIM OVENS, DRYERS AND FURNACES: This proposed control measure applies to ovens, dryers, furnaces, incinerators and other external combustion equipment at non-RECLAIM facilities. Some of these equipment have NO_x emission limits based on best available control technologies (BACT)/lowest achievable emission rate (LAER) requirements at the time the equipment is permitted. In addition, equipment exempt from permit requirements are not currently subject to NO_x controls. NO_x emissions from these types of equipment can be reduced using low-NO_x burners through retrofit or replacement. NO_x emission reductions of 50 to 75 percent are achievable for the equipment that is not subject to current BACT limits.

CMB-02 – FURTHER REDUCTIONS OF SO_x FOR RECLAIM (BARCT) [SO_x]: This proposed control measure identifies a series of control approaches that can be implemented as part of the Best Available Retrofit Control Technology (BARCT) from the SO_x RECLAIM program. The SCAQMD will seek further reductions in SO_x allocations from the year 2011 through 2014.

² The Basin is classified as Severe 17 and the Coachella Valley located in Riverside County is classified as a serious non-attainment area with respect to the eight-hour ozone National Ambient Air Quality Standards (NAAQS). The U.S. EPA Final Rule to Implement the eight-hour Ozone NAAQS (70 FR 71612, November 29, 2005) requires that areas classified as moderate or higher for the eight-hour ozone NAAQS must develop and submit a demonstration that their current air pollution rules fulfill the eight-hour ozone Reasonably Available Control Technology.

CMB-03 – FURTHER NO_x REDUCTIONS FROM SPACE HEATERS: This control measure applies to natural gas-fired residential (and commercial) space heaters used for comfort heating. SCAQMD Rule 1111 - NO_x Emissions from Natural Gas-Fired Fan Type Central Furnaces regulates space heaters with input rates less than 175,000 British Thermal Units per hour (Btu/hr). This measure would establish a more stringent emission limit for new space heaters that can be achieved through the use of low-NO_x burners or other technologies. This control measure would be implemented through an amendment to Rule 1111.

CMB-04 – NATURAL GAS FUEL SPECIFICATIONS (NO_x): The purpose of this new control measure is to prevent emission increases from the combustion of natural gas with uncharacteristically higher heating value (HHV)³ in stationary applications. The HHV of natural gas relative to natural gas with a lower heating value may result in increased combustion temperature and, possibly, higher NO_x emissions. This control strategy considers setting an upper limit of the HHV of natural gas. Natural gas producers/suppliers could achieve the objective of this control strategy by either not supplying hot gas to the district, or by importing high methane liquefied natural gas (LNG); removing the more complex hydrocarbons; or adding inert gases like nitrogen. The SCAQMD staff will continue data collection to further determine the relationship between the HHV for natural gas fuel and NO_x emissions from gas-fired equipment. Based on this information, the SCAQMD staff will make a final determination about the potential emission reductions that can be realized from this measure.

2.6.1.4 Fugitive Dust Sources

BCM-01 - PM CONTROL DEVICES (BAGHOUSES/WET SCRUBBERS/ELECTRO - STATIC PRECIPITATORS, OTHER DEVICES): This proposed control measure would further reduce PM emissions from add-on control devices currently used to achieve PM reductions (e.g., BACT or command-and-control requirements). SCAQMD rules establish PM emissions limits and visible opacity standards that may be achieved with baghouse control equipment, electrostatic precipitators, wet scrubbers, or other PM control devices. This measure would establish requirements similar to Rule 1156 (cement operations) to establish and maintain operation and maintenance (O&M) procedures, install and operate a continuous opacity monitor system (COMS) or a bag leak detection system (BLDS) for top process emitters.

BCM-02 – PM EMISSION HOT SPOTS – LOCALIZED CONTROL PROGRAM: This proposed new control measure would reduce PM emissions in areas where local influence is the main contributor to the overall exposure. Due to the range of economic development in the district, certain locations may be prone to substantially higher levels of PM emissions compared to the broader surrounding area. For example, the highest PM₁₀ concentrations are measured at the SCAQMD's Rubidoux monitoring station. Primary contributors to those concentrations are sources of crustal material (known as entrained fugitive dust). In and around the area of the Rubidoux monitoring station there are unstabilized vacant lots, unpaved road shoulders, and unpaved roads and residential parking areas. This proposed control measure would establish a localized program to supplement the regional approach to address PM hot spots through a

³ Higher heating value can be used to calculate the Wobbe index number of fuel gases, which is used to compare the combustion energy output of different composition fuel gases. Reducing the Wobbe index of a gaseous fuel reduces the higher heating value.

cooperative effort with local agencies to reduce emissions from directly emitted PM from local sources.

BCM-03 – EMISSION REDUCTIONS FROM WOOD BURNING FIREPLACES AND WOODSTOVES: The 2003 AQMP included a control measure to reduce emissions, primarily PM, from wood burning fireplaces and wood burning stoves. Control options identified include voluntary or mandatory wood burning curtailment during periods of poor air quality; prohibiting the installation of indoor or outdoor uncontrolled fireplaces in new or existing developments; moisture content requirements for wood sold as seasoned; change-out of wood heating appliances during property transfers, and prohibition of burning non-wood items. PM emission reductions have been quantified for mandatory wood burning curtailments in other areas in California. SCAQMD staff is currently developing a rule to implement this control measure.

BCM-04 – ADDITIONAL PM EMISSION REDUCTIONS FROM RULE 444 – OPEN BURNING [PM]: This control measure would reduce PM emissions through further reduction or control of open burning practices. Rule 444 was originally adopted to reduce visible emissions and minimize public nuisance from smoke emissions. The rule now includes limits on prescribed and agricultural burning. PM emission reductions may be achieved through the establishment of “no burn days” based on a PM_{2.5} threshold of the 24-hour standard of 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Measures may be adopted to require substitution or alternative methods for some agricultural burning. Other measures include the establishment of stricter criteria for training burns that are conducted for fire protection purposes.

BCM-05 – EMISSION REDUCTIONS FROM UNDER-FIRED CHARBROILERS: Restaurant operations continue to be significant contributors in the PM₁₀ and PM_{2.5} emission inventory. The SCAQMD intends to continue its efforts in the research and development of control technologies that would cost-effectively reduce particulates from restaurant operations and would amend its rules should those technologies become available. This control measure would be implemented in two phases. Phase I would examine the feasibility of charbroiler controls with a study completion no later than 2010. If feasible and cost-effective controls are identified, adoption and full implementation would be targeted by 2020. In conjunction with this effort, staff will also evaluate potential PM₁₀ credit generation opportunities for use by other sources. Possible implementation of the proposed control measure to occur prior to 2014.

2.6.1.5 Multiple Component Sources

MCS-01 - FACILITY MODERNIZATION: This proposed measure would achieve further emission reductions from permitted sources by means of facility modernization and use of supercompliant materials. Existing equipment would be retrofitted or replaced with BACT at the end of a pre-determined lifespan. The SCAQMD would work with the legislature to develop federal and/or state tax credits to encourage early replacement of equipment. Consideration will be given to prior investment in equipment retrofits. During rule development, staff will explore opportunities to provide temporary emission reduction credits for meeting BACT earlier than required by the control measure.

MCS-02 – URBAN HEAT ISLAND: This proposed measure would provide incentives to encourage activities or programs that would lower ambient air temperatures in urban areas, such as using lighter colored roofing and paving materials. This measure is implemented in part through the U.S. EPA's Cool Communities Program. The U.S. EPA and the SCAQMD have been moving forward with promoting the use of lighter color roofing and paving materials. Several demonstration projects are currently being conducted nationally (one with the City of Los Angeles). In addition, tree planting programs are being promoted throughout the region. The SCAQMD has sponsored several studies to further quantify the benefits of these actions.

MCS-03 – ENERGY EFFICIENCY AND CONSERVATION: This proposed control measure would provide incentives for businesses in the district to use energy efficient equipment and increase the effectiveness of energy conservation programs. The SCAQMD is proposing to develop and implement specific energy efficiency and conservation programs above and beyond the state and federal mandated programs to achieve further emission reductions. The SCAQMD may also examine its market incentive or fee programs to identify opportunities for implementation of energy conservation and efficiency measures.

MCS-04 – EMISSIONS REDUCTION FROM GREENWASTE COMPOSTING: Greenwaste composting is an important component of the solid waste industry; it provides resource conservation through source reduction, recycling, and reuse. However, as with other industrial processes, greenwaste composting produces emissions that are largely uncontrolled. Greenwaste composting is a direct source of PM₁₀, VOC, and ammonia (NH₃), a precursor of particulate matter. Greenwaste composting also releases carbon dioxide, water vapor, and methane, which are greenhouse gases. Although PM₁₀ emissions from this source are unknown at this time, greenwaste composting results in approximately 4.4 tons per day of VOC emissions and one ton per day of ammonia emissions. This control measure calls for the development and implementation of Best Management Practices (BMPs) that would reduce PM_{2.5} and VOC emissions. The SCAQMD will convene a working group to involve all stakeholders in developing BMPs and other solutions to reduce greenwaste emissions.

MCS-05 - EMISSION REDUCTIONS FROM LIVESTOCK WASTE: Although confined animal facilities have been relocating out of the SCAQMD's jurisdictional boundaries for years, the district retains over nine million poultry (egg layers and broilers) and more than 15,000 hogs and pigs (swine). In accordance with SB 700 (Florez) – Agricultural Sources, SCAQMD adopted Rule 223 – Emission Reduction Permits for Large Confined Animal Facilities, which requires permits and other requirements for large confined animal facilities. Additional VOC and NH₃ emission reductions, above those required by Rule 223, could be achieved by requiring air pollution control devices (i.e., biofilters) where technically and economically feasible. For example, AQMD Rule 1133.2 – Emission Reductions from Co-Composting Operations includes a requirement for control devices at large-scale composting facilities with required efficiencies ranging from 70 to 80 percent from the baseline uncontrolled emissions. This proposed control measure would require the Class Two Mitigation Measures of Rule 223 to achieve a higher level of overall control efficiency for the larger facilities subject to Rule 223 and seek reductions from the smaller facilities not currently subject to the rule.

MCS-06 – IMPROVED STARTUP, SHUTDOWN, AND TURNAROUND PROCEDURES: This proposed control measure would reduce emissions during equipment startup, shutdown, and turnaround. Opportunities for emission reductions from these activities potentially would apply to refinery operations as well as other industries. Examples of possible areas for improvement include better engineering and equipment design, diverting or eliminating process streams that are vented to flares, and installation of redundant equipment to increase operational reliability.

MCS-07 - APPLICATION OF ALL FEASIBLE MEASURES: This control measure addresses the attainment of further emission reductions through the amendment of existing RECLAIM and non-RECLAIM rules and regulations. In particular, existing regulations on VOC coatings and solvents would be targeted for further emission reductions as well as rules and regulations for other pollutants such as NO_x and SO_x. Existing rules and regulations for pollutants such as VOC, NO_x, SO_x and PM reflect current best available retrofit control technology (BARCT). However, BARCT continually evolves as new technology becomes available that is feasible and cost-effective. Through this proposed control measure, the District would commit to the adoption and implementation of the new retrofit control technology standards.

MCS-08 – EMISSION CHARGES OF \$5,000 PER TON FOR STATIONARY SOURCES WITH POTENTIAL TO EMIT OVER 10 TONS PER YEAR: Due to recent court decision on the one-hour ozone standard, this control measure proposes that if the federal one-hour ozone ambient air quality standard is not met by the year 2010, the District shall impose an emissions fee of \$5,000 per ton, emitted by each major source in excess of 80 percent of the sources' baseline NO_x or VOC emissions. The fee rate will be adjusted annually to reflect increases in the consumer price index. The fee shall be paid for each calendar year after the year 2010 and until the standard is met. Furthermore, this fee will be in addition to the annual emission fee required by SCAQMD Rule 301.

2.6.1.6 Compliance Flexibility Programs

FLX-01 – ECONOMIC INCENTIVE PROGRAMS (ALL POLLUTANTS): Proposed Control measure FLX-01 (Intercredit Trading Program) is designed to complement command-and-control measures. The primary objectives of this measure are to enhance regulatory compliance flexibility, lower compliance costs, and to incentivize early emission reductions and promote commercialization of advanced pollution control technologies through emission credit provisions. The SCAQMD will expand incentive-based credit generation rules and programs to provide technology advancement or early implementation of mobile, area, and stationary source emission reduction projects. Credit rules may be developed for use in RECLAIM, command-and-control programs, or for use by projects subject to New Source Review (Regulation XIII). The U.S. EPA Economic Incentive Program (EIP) guidance would be considered in development of rules to help facilitate CARB and EPA review and approval.

FLX-02 - PETROLEUM REFINERY PILOT PROGRAM: This proposed control measure includes a pilot program to provide an alternative means of compliance for refinery operators by allowing them to achieve their emission reduction obligations by reducing emissions from on-

site or off-site projects. Based on a recommendation provided in the 2003 AQMP, the SCAQMD initiated a collaborative multi-stakeholder process to consider whether to implement this approach as a pilot program for refineries in the Basin. This process has been ongoing since the initial July 2005 Working Group meeting. If such a program is adopted, then upon achieving at a minimum equivalent emission reductions to those reductions anticipated under command-and-control rules, the pilot program would subsume any short- and mid-term control measures and long-term reduction obligations proposed in the 2007 AQMP for the refinery sector. Implementing this pilot program does not preclude future adjustments to the overall reduction targets established for this source category if warranted by attainment demonstrations or inventory changes in future SIP revisions.

2.6.1.7 Emission Growth Management

EGM-01 - EMISSION REDUCTIONS FROM NEW OR REDEVELOPMENT PROJECTS: The purpose of this proposed control measure is two-fold: (1) compliance with the “all feasible measures” requirement of the state law, and (2) capturing emission reduction opportunities during project development phase. The AQMD convened a working group made up of stakeholders from industry, local governments, and community representatives. Three working group meetings were held and staff prepared the following approach: AQMD will put forth a plan that contains a control measure which will establish emission limits for new or redevelopment projects and will involve the selection of mitigation measures from a menu of technically feasible mitigation options.

EGM-02 - EMISSION BUDGET AND MITIGATION FOR GENERAL CONFORMITY PROJECTS (ALL POLLUTANTS): A General Conformity determination is required by the federal Clean Air Act (CAA) for federal actions other than transportation actions. The requirements for General Conformity are contained in the federal CAA and must, in general, support the goals of the SIP. One method of determining conformity is for the SCAQMD to identify applicable emission budgets for the federal agencies to determine if the total of the direct and indirect emissions from the General Conformity project meets the emission budget in the SIP. The SCAQMD staff proposes to make this determination through a combination of setting aside emissions from each source category, offsetting emissions exceeding budgets, and mitigation fees.

EGM-03 - EMISSIONS MITIGATION AT FEDERALLY PERMITTED PROJECTS: This control measure addresses mitigation measures for federally permitted projects impacting the district. The need for mitigations from federal projects was identified as the result of a recently proposed liquefied natural gas facility to be located in federal waters offshore of Ventura County. While this project is located in waters offshore from Ventura County and must obtain an air permit from the U.S. EPA, the district is downwind and will be directly affected by the proposed project. Further, the quality of natural gas imported by the proposed project may significantly affect progress towards achieving air quality goals in the district.

2.6.1.8 SCAQMD's Mobile Source Control Measures

MOB-01 – MITIGATION FEE PROGRAM FOR FEDERAL SOURCES: In order to achieve a fair share reduction commitment from federal sources, this new control measure would implement a mitigation fee program which is to be adopted by U.S. EPA with the mitigation fee to be paid by federal sources through EPA rulemaking and/or U.S. EPA grants to the SCAQMD. Federal sources include emission source categories such as aircraft, ocean-going vessels, trains, and pre-empted off-road equipment where emission standards are under the jurisdiction of U.S. EPA. These sources continue to represent a significant source of emissions in the district in the absence of adequate federal regulations. Under this control measure, the SCAQMD will use the monies collected to implement strategies for both federal and non-federal sources to achieve equivalent reductions for SIP purposes. Projects funded by the Mitigation Fee Program for federal or other sources would be selected based on specific criteria, including but not limited to: quantifiable emission benefits, emission reduction potential, cost-effectiveness, and proximity to affected areas (e.g., environmental justice areas). These projects would require approval by the SCAQMD's Governing Board.

MOB-02 – EXPANDED EXCHANGE PROGRAM: In order to increase the penetration of electric equipment or new low emission gasoline-powered equipment, this control measure would expand the existing lawn mower/leaf blower exchange programs. Expanding these programs will be accomplished by increasing the number of exchange events and available funding for these programs. In addition, other small off-road equipment as well as recreational outboard engines used in pleasure craft, may also be considered for exchange programs to accelerate the turnover of existing engines.

MOB-03 - BACKSTOP MEASURE FOR INDIRECT SOURCES OF EMISSIONS FROM PORTS AND PORT-RELATED FACILITIES: This proposed control measure will address emissions from all new and existing stationary and mobile sources at ports and port-related facilities, including non-attainment criteria pollutants and toxics emissions. The objective of this backstop measure is to ensure the adequacy of and effective implementation of port measures and strategies proposed or developed by the ports or CARB. Possible control approaches include: limiting increases in health risks caused by toxic air contaminants; reducing health risks caused by toxic emissions from ports and port projects; preventing emission increases of non-attainment pollutants for port projects; and emission reduction goals for ports to implement AQMP measures.

MOB-04 – EMISSIONS REDUCTION FROM THE CARL MOYER PROGRAM: The proposed control measure would take credit for the emission reductions achieved through past and future projects funded through the Carl Moyer Program for SIP purposes in two phases. Examples of projects funded through this program include on-road heavy-duty vehicle modernization, installation of retrofit units, and engine repowers. Phase I of this control measure is based on the projects implemented from 1998 to 2006. Phase II of this measure is based on the reductions to be achieved from the implementation of new projects under the Carl Moyer Program. Emission reductions would be estimated based on the committed level of funding for this program and a conservative cost-effectiveness assumption of \$14,300 per ton reduction

specified in the Carl Moyer Program guidelines (although existing projects have substantially lower (better) cost-effectiveness estimates).

MOB-05 – AB923 LIGHT-DUTY HIGH-EMITTER IDENTIFICATION PROGRAM:

This measure calls for the identification of high-emitting on-road light- and medium-duty vehicles up to 8,500 lbs gross vehicle weight. The District is currently conducting a pilot program to identify high-emitters using remote sensing technologies. Owners of identified vehicles will be offered the ability to repair or scrap their vehicles as part of the program. The District is currently allocating a portion of the AB 923 funds for this purpose and CARB has developed guidelines to implement the program.

MOB-06 – AB923 MEDIUM-DUTY HIGH-EMITTER IDENTIFICATION PROGRAM:

This measure is similar to SCONRD-02 and would include medium-duty and light-heavy-duty vehicles with 8,501 lbs and up to 14,000 lbs gross vehicle weight. Currently, vehicles in this weight category are not subject to in-use testing program. The AB923 program described in MOB-05 could be expanded to cover this category of vehicles.

MOB-07 – CONCURRENT REDUCTIONS FROM GLOBAL WARMING STRATEGIES

(All Pollutants): Achieving the AB32 greenhouse gas reduction targets would require significant development and implementation of energy efficiency technologies and extensive shifting of energy production to renewable sources. In addition to reducing GHG emissions, such strategies would concurrently reduce emissions of criteria pollutants associated with fossil fuel combustion. This control measure proposes to quantify the concurrent emission reductions associated with Statewide GHG programs targeted at stationary and mobile sources in the Basin working with various state agencies. Every three to five years, concurrent emission reductions associated with these programs will be quantified and incorporated in the revised baseline emissions as part of the SIP revision process.

2.6.2 STATE AND FEDERAL CONTROL MEASURES

In addition to SCAQMD and SCAG's measures, the 2007 AQMP includes additional short- and mid-term control measures to reduce emissions from sources that are primarily under State and federal jurisdiction, including on-road and off-road mobile sources and consumer products. These measures are required in order to achieve the remaining emission reductions necessary for PM2.5 attainment and making progress toward the eight-hour ozone attainment.

A large percentage of emission sources in the district are primarily under state (CARB) or federal (U.S. EPA) jurisdiction. These sources include on-road and off-road mobile sources and consumer products. On January 31, 2007, CARB released its draft proposed strategy for California's 2007 State Implementation Plan which identifies a number of near-term control measures aimed at reducing emissions from mobile sources and consumer products. CARB acknowledges that the proposed state measures may not provide adequate level of reductions for PM2.5 attainment by 2015.

The SCAQMD staff believes that additional emission reduction measures necessary for PM2.5 attainment beyond those proposed by CARB are technically and economically feasible through

regulatory programs and/or incentive funding programs and should be incorporated into the 2007 AQMP. Therefore, for the 2007 AQMP, the SCAQMD staff is proposing a comprehensive control strategy for attaining both PM_{2.5} and ozone standards which would be submitted to U.S. EPA for approval by June 2007.

The proposed modifications to the 2007 AQMP control strategy for sources under state and federal jurisdiction consists of two components: 1) CARB's Draft Proposed State Strategy; and 2) Proposed Policy Options to Supplement CARB's Control Strategy (proposed by the SCAQMD).

2.6.2.1 CARB's Proposed State Strategy

ON-ROAD SOURCES

ARB-ONRD-1 Improvements and Enhancements to California's Smog Check Program: ARB-ONRD-1 proposes to implement the following:

Low Pressure Evaporative Test. Require low pressure evaporative system testing and repair of evaporative system leaks for all vehicles subject to Smog Check inspection.

More Stringent Cutpoints. Set more stringent pass/fail cutpoints to ensure more cars would have more complete and durable repairs.

Annual Inspections for Older Vehicles. Inspect older vehicles annually rather than every two years. Older vehicles tend to have greater deterioration of emission controls, and consequently, higher emissions.

Annual Inspections for High Annual Mileage Vehicles. Inspect annually, rather than every two years, vehicles that accrue very high mileage on an annual basis. High mileage vehicles tend to have greater deterioration of emission controls and, consequently, higher emissions.

Add Visible Smoke Test. As part of the Smog Check test, include a check for visible smoke to identify vehicles with excess particulate matter (PM) emissions.

Inspection of Light- and Medium-Duty Diesels. Include light- and medium-duty diesel vehicles in the Smog Check program to provide for improved maintenance and reduced emissions for this part of the fleet, and require the repair of poorly maintained or old emission systems.

Inspection of Motorcycles. Include motorcycle inspections as part of Smog Check. Studies indicate that motorcycles are subject to high rates of exhaust system tampering.

ARB-ONRD-2 Expanded Passenger Vehicle Retirement: Increase the number of vehicles that are voluntarily retired by implementing a scrappage program for vehicles that are off-cycle from their Smog Check inspections.

ARB-ONRD-3 Modifications to Reformulated Gasoline Program: Modify California's Reformulated Gasoline Program to offset ROG emissions due to the increased use of ethanol. This rulemaking activity is currently underway and is intended to fully mitigate the emission increase, which has been incorporated in the current emissions inventory.

ARB-ONRD-4 Cleaner In-Use Heavy-Duty Trucks: This proposed measure is a comprehensive in-use diesel truck emissions reduction program that includes a fleet modernization rule and an enhanced screening and repair program. Fleet modernization would focus on overcoming the typically slow rate of heavy-duty truck turnover by requiring truck owners to meet specified emission levels through replacing or cleaning up the oldest trucks in their fleets, and would also include a program for out-of-state trucks. ARB's roadside heavy-duty vehicle inspection program would be expanded to more effectively identify and screen trucks that need emission control system repairs.

GOODS MOVEMENT SOURCES

ARB-OFFRD-1 Auxiliary Ship Engine Cold Ironing and Other Clean Technology: Reduce emissions from ships at berth with at-dock technologies such as cold ironing (electrical power) and other clean technologies.

ARB-OFFRD-1 Cleaner Main Ship Engines and Fuel: Further reduce emissions from main engines through added retrofits such as selected catalytic reduction. Support efforts by ports and appropriate local entities to accelerate use of cleaner ships and rebuilt engines through other tools such as lease restrictions. Require ships to use low sulfur diesel fuel in main engines when operating within 24 nautical miles of shore.

ARB-ONRD-5 Port Truck Modernization: Retrofit or replace older heavy-duty diesel trucks that service ports. Work with port authorities to prevent adding older trucks to the fleet. ARB rulemaking process for this proposed measure has begun.

ARB-OFFRD-2 Accelerated Introduction of Cleaner Line-Haul Locomotives: Replace existing locomotive engines with cleaner Tier 3 engines beginning in 2012 and conduct concurrent rebuilds of older engines to Tier 2.5 standards. Locomotive measure relies on U.S. EPA rulemaking and industry agreement to accelerate fleet turnover. This measure can only occur if U.S. EPA adopts Tier 3 engines standards for locomotives.

ARB-OFFRD-3 Clean Up Existing Commercial Harbor Craft: Require owners of existing commercial harbor craft to replace old engines (both propulsion and auxiliary) with newer cleaner engines and/or add emission control technologies that clean up engine exhaust. ARB rulemaking for this proposed measure is underway.

OFF-ROAD SOURCES

ARB-OFFRD-4 Cleaner In-Use Off-Road Equipment: Establish fleet average emission limits for off-road equipment (over 25 horsepower) that would require older, dirtier engines to be

replaced with engines reflecting current technologies or retrofitted with emission control devices. ARB rulemaking for this proposed measure is in process.

Agricultural Equipment Fleet Modernization. Accelerate the modernization of the fleet of agricultural equipment used in California, removing older, dirtier equipment from service to be replaced with engines reflecting cleaner technologies.

ARB-OFFRD-5 New Emission Standards for Recreational Boats: Adopt catalyst-based standards (5 g/kW-hr) for new outboard engines and evaporative emission standards to address all sources of recreational boat evaporative emissions.

ARB-OFFRD-6 Off-Road Recreational Vehicle Expanded Emission Standards. Adopt exhaust and evaporative emission standards to reduce the amount of ROG from off-highway motorcycles and all-terrain vehicles.

Portable Outboard Marine Tank Evaporative Standards: Set evaporative standards for removable fuel tanks used on outboard recreational boats.

Refueling Gasoline Tank Evaporative Standards: Set evaporative standards for refueling gasoline tanks typically mounted on pickups and large recreational vehicles and used to refuel equipment and other smaller vehicles.

Gas Station Refueling Hose Evaporative Standards: Set evaporative standards for gas station pump hoses.

Enhanced Vapor Recovery for Above Ground Storage Tanks: Implement an enhanced vapor recovery certification process and new performance standards and specifications for large fuel tanks used extensively in agricultural operations.

AREAWIDE SOURCES

ARB-CONS-1 Tighten Standards: Tighten standards or require product reformulation for consumer products categories through several rulemakings through 2010.

New Pesticide Strategies: The California Department of Pesticide Regulation will further reduce emissions from commercial and agricultural pesticide use in California through reformulation, reduced usage, and innovative technologies and practices.

Tables 2-7, 2-8, and 2-9 show the expected emission reductions from the proposed new SIP measures in 2014, 2020, and 2023. It should be noted that the reductions associated with three off-road measures (i.e., portable outboard marine tank, refueling gasoline storage tank, and gas station fueling hose evaporative standards) presented here are not used for SIP purposes since the source categories for these measures are not reflected in the baseline at this time.

TABLE 2-7
2014 Expected Emission Reductions from CARB's Proposed New SIP Measures
(tons per day)

Proposed New SIP Measures	NO _x	ROG	PM _{2.5}	SO _x
ON-ROAD SOURCES				
Passenger Vehicles	14.4	17.7	0.2	--
ARB-ONRD-1 Smog Check Improvements (BAR)	12.0	10.5	0.2	--
ARB-ONRD-2 Expanded Vehicle Retirement	2.4	2.8	0.05	--
ARB-ONRD-3 Modifications to Reformulated Gasoline Program	--	4.4	--	--
Trucks	47.3	5.1	3.0	--
ARB-ONRD-4 Cleaner In-Use Heavy-Duty Trucks	47.3	5.1	3.0	--
GOODS MOVEMENT SOURCES				
ARB-OFFRD-1 Auxiliary Ship Engine Cold Ironing and Other Clean Technology	18.5	--	0.3	0.4
ARB-OFFRD-1 Cleaner Main Ship Engines and Fuel	20.0	--	2.4	19.7
ARB-ONRD-5 Port Truck Modernization	2.0	--	0.5	--
ARB-OFFRD-2 Accelerated Introduction of Cleaner Line-Haul Locomotives	4.3	0.7	0.2	--
ARB-OFFRD-3 Clean Up Existing Harbor Craft	4.6	0.5	0.2	--
OFF-ROAD SOURCES				
ARB-OFFRD-4 Cleaner In-Use Off-Road Equipment (over 25hp)	13.8	2.2	2.5	--
Agricultural Equipment	NYQ	NYQ	NYQ	0
Other Off-Road Sources	0.4	16.9	--	--
ARB-OFFRD-5 New Emission Standards for Recreational Boats	0.4	4.2	--	--
ARB-OFFRD-6 Expanded Off-Road Recreational Vehicle Emission Standards	--	1.4	--	--
Portable Outboard Marine Tank Evaporative Standards ⁽¹⁾	--	1.8	--	--
Refueling Gasoline Storage Tank Evaporative Standards ⁽¹⁾	--	1.6	--	--
Gas Station Fueling Hose Evaporative Standards ⁽¹⁾	--	1.5	--	--
Enhanced Vapor Recovery for Above Ground Storage Tanks	--	NYQ	--	--
AREAWIDE SOURCES				
ARB-CONS-1 Consumer Products	--	12.9	--	--
Pesticides	--	NYQ	--	--
Total Emission Reductions from Proposed New Measures	125	45	9	20

NYQ = Not Yet Quantified. BAR = Bureau of Automotive Repair. DPR = Department of Pesticide Regulation

(1) These measures are not considered for SIP purposes because the source categories are not in the baseline emissions at this time.

TABLE 2-8
2020 Expected Emission Reductions from CARB's Proposed New SIP Measures
(tons per day)

Proposed New SIP Measures	NO _x	ROG	PM _{2.5}	SO _x
ON-ROAD SOURCES				
Passenger Vehicles	9.6	12.9	0.3	--
ARB-ONRD-1 Smog Check Improvements (BAR)	8.3	8.7	0.2	--
ARB-ONRD-2 Expanded Vehicle Retirement	1.3	1.2	0.06	--
ARB-ONRD-3 Modifications to Reformulated Gasoline Program	--	3.0	--	--
Trucks	26.9	2.6	1.5	--
ARB-ONRD-4 Cleaner In-Use Heavy-Duty Trucks	26.9	2.6	1.5	--
GOODS MOVEMENT SOURCES	87.1	2.3	4.3	26.1
ARB-OFFRD-1 Auxiliary Ship Engine Cold Ironing and Other Clean Technology	28.3	--	0.4	0.7
ARB-OFFRD-1 Cleaner Main Ship Engines and Fuel	32.3	--	3.1	25.4
ARB-ONRD-5 Port Truck Modernization	8.0	--	0.3	--
ARB-OFFRD-2 Accelerated Introduction of Cleaner Line-Haul Locomotives	13.4	1.8	0.3	--
ARB-OFFRD-3 Clean Up Existing Harbor Craft	5.1	0.5	0.2	--
OFF-ROAD SOURCES				
ARB-OFFRD-4 Cleaner In-Use Off-Road Equipment (over 25hp)	13.2	2.1	1.7	--
Agricultural Equipment	NYQ	NYQ	NYQ	0
Other Off-Road Sources	1.6	33.7	--	--
ARB-OFFRD-5 New Emission Standards for Recreational Boats	1.6	12.8	--	--
ARB-OFFRD-6 Expanded Off-Road Recreational Vehicle Emission Standards	--	2.4	--	--
Portable Outboard Marine Tank Evaporative Standards ⁽¹⁾	--	2.9	--	--
Refueling Gasoline Storage Tank Evaporative Standards ⁽¹⁾	--	1.9	--	--
Gas Station Fueling Hose Evaporative Standards ⁽¹⁾	--	1.6	--	--
Enhanced Vapor Recovery for Above Ground Storage Tanks	--	NYQ	--	--
AREAWIDE SOURCES				
Consumer Products	--	13.5	--	--
ARB-CONS-1 Consumer Products Program	--	13.5	--	--
Pesticides/DPR Pesticide Plan	--	NYQ	--	--
Total Emission Reductions from Proposed New Measures	138	49	8	26

NYQ = Not Yet Quantified. BAR = Bureau of Automotive Repair. DPR = Department of Pesticide Regulation

(1) These measures are not considered for SIP purposes because the source categories are not in the baseline emissions at this time.

TABLE 2-9
2023 Expected Emission Reductions from CARB's Proposed New SIP Measures
(tons per day)

	South Coast	
Proposed New SIP Measures	NOx	ROG
ON-ROAD SOURCES		
Passenger Vehicles	7.1	10.5
ARB-ONRD-1 Smog Check Improvements (BAR)	6.9	7.5
ARB-ONRD-2 Expanded Vehicle Retirement	0.2	0.5
ARB-ONRD-3 Modifications to Reformulated Gasoline Program	--	2.5
Trucks	18.3	1.7
ARB-ONRD-4 Cleaner In-Use Heavy-Duty Trucks	18.3	1.7
GOODS MOVEMENT SOURCES	99.2	2.5
ARB-OFFRD-1 Auxiliary Ship Engine Cold Ironing and Other Clean Technology	30.8	--
ARB-OFFRD-1 Cleaner Main Ship Engines and Fuel	39.9	--
ARB-ONRD-5 Port Truck Modernization	7.0	--
ARB-OFFRD-2 Accelerated Introduction of Cleaner Line-Haul Locomotives	15.6	1.9
ARB-OFFRD-3 Clean Up Existing Harbor Craft	5.9	0.6
OFF-ROAD SOURCES		
ARB-OFFRD-4 Cleaner In-Use Off-Road Equipment (over 25hp)	12.2	2.0
Agricultural Equipment	--	--
Other Off-Road Sources	2.4	42.9
ARB-OFFRD-5 New Emission Standards for Recreational Boats	2.4	17.7
ARB-OFFRD-6 Expanded Off-Road Recreational Vehicle Emission Standards	--	3.4
Portable Outboard Marine Tank Evaporative Standards ⁽¹⁾	--	4.0
Refueling Gasoline Storage Tank Evaporative Standards ⁽¹⁾	--	2.1
Gas Station Fueling Hose Evaporative Standards ⁽¹⁾	--	1.7
Enhanced Vapor Recovery for Above Ground Storage Tanks	--	NYQ
AREAWIDE SOURCES		
Consumer Products	--	13.7
ARB-CONS-1 Consumer Products Program	--	13.7
Pesticides	--	NYQ
Total Emission Reductions from Proposed New SIP Measures	139	52

NYQ = Not Yet Quantified. BAR = Bureau of Automotive Repair. DPR = Department of Pesticide Regulation

- (1) These measures are not considered for SIP purposes because the source categories are not in the baseline emissions at this time.

2.6.2.2 Policy Options to Supplement CARB's Control Strategy

Additional reductions in mobile source emissions beyond the reductions identified in CARB's mobile source control strategy are needed in order for the South Coast Air Basin to attain the federal PM_{2.5} ambient air quality standard by 2015. To achieve the necessary reductions poses several challenges. The most significant challenge is the short timeframe to achieve the necessary reductions. This challenge can be partially overcome with early actions to affect mobile source cleanup through voluntary incentive programs such as the Carl Moyer Program. However, additional public funds are needed to accelerate such efforts. Regulatory actions to mandate mobile source cleanup are also needed beyond those identified by CARB to date.

The District staff believes that a combination of regulatory actions and public funding is the most effective means of achieving emission reductions. As such, the 2007 AQMP proposes three policy options for the decision makers to consider in achieving additional reductions. The first option is the District staff's proposed additional control measures as a menu of selections to further reduce emissions from sources primarily under State and federal jurisdiction. The proposed additional control measures represent a menu of measures that the State could implement and are intended to complement CARB's mobile source control strategy with defined short-term and mid-term control measures needed for reaching attainment by 2015 and to meet legal requirements.

The proposed additional control measures are also intended to highlight the level of stringency and reductions needed from State and federal sources for attainment. These measures can be modified or substituted by the implementing agencies to achieve equivalent or greater reductions in the time frame needed for PM_{2.5} attainment. More importantly, full implementation of the proposed measures will result in significant reductions in air toxic contaminants.

The second option is to have the state fulfill its NO_x emission reduction obligations under the 2003 AQMP by 2010, for its defined control measures plus additional reductions needed to meet the NO_x emission target between 2015 and 2016. An additional 208 tons per day of NO_x would be needed between 2010 and 2014. Under this option the state could include some of the proposed measures under the first option or other measures that the state identifies as part of the SIP public process.

The third option is based on the same rate of progress under Policy Option 1, but it relies heavily on public funding assistance to achieve the needed NO_x reductions via accelerated fleet turnover to post-2010 on-road emission standards or the cleanest off-road engine standards in effect today or after 2010. Under Policy Option 3, CARB or the District would assume the responsibility of implementing the incentive programs based on specific funding levels designated for this purpose. Based on the analysis performed for the Carl Moyer program, up to an estimated \$730 million per year is needed between 2009 and 2014. Table 2-10 illustrates funding sources that have been suggested in the past by various parties and the District staff has included these as a matter of perspective and is seeking comments and suggestions on appropriate funding sources.

TABLE 2-10

Example List of Past Suggested Funding Sources by Various Parties

Potential Funding Sources	Potential Funding Levels
Carl Moyer Program	~\$35 - \$50 million/yr
MSRC Program	~ \$8 - \$10 million/yr
Marine Port User Fee Proposals	~\$250 million/yr
1-cent Increase in Fuel Tax	~\$70 - \$80 million/yr

The District staff recognizes these are difficult policy choices Basin is facing, but not meeting the PM2.5 standard by 2015 is not an acceptable public policy in light of recent health studies on particulate matter, not to mention the potential adverse economic impacts on the region due to potential federal sanctions. The following sections further describe the three policy options.

Policy Option 1: Table 2-11 provides a list of the proposed additional control measures for on-road and off-road mobile sources with estimated reductions in 2014 and 2023 for CARB's consideration under this option. Based on CARB's proposed mobile source control strategy, District staff refined its evaluation of the control measures recommended in the AQMP. Depending on the mobile source sector and the proposed control approach, District staff analyzed the need to accelerate the penetration of cleaner engine technologies. The control measures proposed in Table 2-11 represent strategies that are technologically feasible. However, implementation challenges such as cost and need to implement as soon as possible must be overcome. For goods movement source categories such as marine vessels, trucks, rail, and cargo handling equipment, the control measures proposed by the District are primarily based on a hybrid approach that relies on measures and strategies outlined in CARB's Goods Movement Emissions Reduction Plan and the adopted San Pedro Bay Ports Clean Air Action Plan. However, where warranted, a number of measures from these plans have been revised to reflect a higher level of stringency or fleet penetration in order to achieve the necessary reductions for attainment. Detailed descriptions of these control measures are provided in the Appendix IV-B-2 of the 2007 AQMP.

The proposed additional State and federal control measures are estimated to achieve 7 tons per day of VOC, 70.9 tons per day of NOx, 1.4 tons per day of SOx, and 2.6 tons per day of PM2.5 emission reductions in 2014. In 2023, the estimated reductions for these measures are 17.3 tons per day of VOC, 55.7 tons per day of NOx, 1.6 tons per day of SOx, and 4.9 tons per day of PM2.5 emissions.

The following text provides a brief description of the proposed additional mobile source control measures.

TABLE 2-11

Additional Mobile Source Control Measures Proposed by SCAQMD

Control Measure Number	Title	Estimated Reductions (t/d)	
		2014	2023
SCONRD-01	Accelerated Penetration of Advanced Technology Partial Zero-Emission and Zero Emission Vehicles	VOC: 0.4 NOx: 0.9 PM2.5: 0.04	VOC: 2.1 NOx: 4.5 PM2.5: 0.4
SCONRD-02	Deployment of On-Board Diagnostics (Phase III) in Light- and Medium-Duty Vehicles	VOC: 0.4 NOx: 2.9	VOC: 1.2 NOx: 4.7
SCONRD-03	Further Emission Reductions from On-Road Heavy-Duty Vehicles	VOC: NOx: 20.9 PM2.5: 1.2	VOC: NOx: 5.0 PM2.5: 0.2
SCONRD-04	Further Emission Reductions from Heavy-Duty Trucks Providing Freight Drayage Services	NOx: 6.3 PM2.5: 0.02	NOx: 0.0 PM2.5: 0.0
SCOFFRD-01	Construction/Industrial Equipment Fleet Modernization	VOC: 3.0 NOx: 15.8	VOC: 1.3 NOx: 15.9
SCOFFRD-02	Further Emission Reductions from Cargo Handling Equipment	NOx: 1.1 PM2.5: 0.02	NOx: 0.6 PM2.5: 0.01
SCOFFRD-03	Further Emission Reductions from Locomotives	NOx: 11.0 PM2.5: 0.4	NOx: 3.3 PM2.5: 0.1
SCOFFRD-04	Emission Reductions from Airport Ground Support Equipment	VOC: 0.3 NOx: 0.8	VOC: 0.3 NOx: 0.6
SCOFFRD-05	Emission Reductions from Transport Refrigeration Units	NOx: 1.1	NOx: 5.3
SCOFFRD-06	Accelerated Turnover and Catalyst-Based Standards for Pleasure Craft	VOC: 2.9 NOx: 1.0 PM2.5: 0.6	VOC: 12.6 NOx: 9.1 PM2.5: 4.0
SCFUEL-01	Further Emission Reductions from Gasoline Fuels	NOx: 5.2 SOx: 1.4	NOx: 2.7 SOx: 1.5
SCFUEL-02	Further Emission Reductions from Diesel Fuels	NOx: 3.9 SOx: 0.05 PM2.5: 0.2	NOx: 4.2 SOx: 0.1 PM2.5: 0.2
	Total	VOC: 7.0 NOx: 70.9 SOx: 1.4 PM2.5: 2.6	VOC: 17.3 NOx: 55.7 SOx: 1.6 PM2.5: 4.9

SCONRD-01 – ACCELERATED PENETRATION OF ADVANCED TECHNOLOGY PARTIAL ZERO-EMISSION AND ZERO-EMISSION VEHICLES: This proposed control measure focuses on the accelerated penetration and implementation of advanced

technologies that are capable of achieving partial zero-tailpipe emissions. CARB through its fleet averaging requirements under the current Low Emission Vehicle II program can ensure the availability of advanced technology partial zero-emission vehicles (ATPZEVs) in the California market. This proposed measure would require new sales of ATPZEVs such as plug-in hybrids or cleaner vehicles beginning in 2011 such that there will be about 100,000 new vehicles operating by 2014 and a total of 1 million operating by 2020. This proposal is consistent with the Governor's recent announcement to have 7 million alternative fueled or hybrids on the road by 2020.

SCONRD-02 – DEPLOYMENT OF ON-BOARD DIAGNOSTICS (PHASE III) IN LIGHT- AND MEDIUM-DUTY VEHICLES: This measure calls for the deployment of Phase III on-board diagnostics (OBD-III) in new vehicles beginning in 2011 and a program to retrofit existing vehicles with OBD-III. OBD-III has enhanced capabilities to monitor vehicle emissions and implementation of such device would eliminate the need for periodic smog check programs.

SCONRD-03 – FURTHER EMISSION REDUCTIONS FROM ON-ROAD HEAVY-DUTY VEHICLES: This measure calls for accelerated replacement of on-road heavy-duty vehicles with vehicles meeting the 2010 on-road heavy-duty exhaust emissions standards, beginning in 2011. The proposal calls for resources to be directed at cleaning up the older "captive" fleet used for short to medium distance hauling that are not covered in CARB's control strategy for on-road heavy-duty vehicles. This measure covers all heavy-duty vehicles except for Class 8 over-the-road trucks that provide freight drayage services at marine ports. This measure would target approximately 21,000 heavy-duty diesel vehicles, between 2001 through 2005 model-year for retrofitting or replacement by CY 2014 to meet 2010 on-road emission standards. An alternative implementation option could focus on retrofit/replacement programs targeting model years 2001 through 2009 heavy-duty vehicles. By 2014, a majority of these vehicles will be approaching the end of their useful lives and would be replaced with vehicles meeting 2010 on-road emission standards. Other vehicles would meet retrofit requirements, which would include at a minimum, a 30 percent reduction in NOx and at least an 85 percent reduction in particulate matter, depending on the model year of the vehicle.

SCONRD-04 – FURTHER EMISSIONS REDUCTIONS FROM HEAVY-DUTY TRUCKS PROVIDING FREIGHT DRAYAGE SERVICES: This measure calls for the retrofit or replacement of existing over-the-road trucks providing drayage services at marine ports, intermodal facilities, or warehouse distribution centers consistent with program is provided in the adopted San Pedro Bay Ports Clean Air Action Plan. The state is currently developing a regulation on trucks operating at marine ports and intermodal facilities. However, the state's proposal would be implemented over a 10 to 12 year period. The San Pedro Bay Ports Clean Air Action Plan calls for all trucks calling at the marine ports to be cleaned up by the end of 2011. As such, the proposed control measure would complement statewide actions and the emissions reductions associated with this measure would be beyond the reductions sought by CARB.

SCOFFRD-01 – CONSTRUCTION/INDUSTRIAL EQUIPMENT FLEET MODERNIZATION: Over the last ten years and over the next seven years, new off-road diesel engines will have met or will need to meet more stringent emissions standards. These standards

are designated by different tiers with Tier 0 (uncontrolled) and older engines being the most polluting through Tier 4 engines which will be the cleanest off-road engines with emission standards somewhat higher than those for similarly aged on-road engines. CARB is proposing regulatory actions on this sector, which when implemented by 2014 will result in about 15 tons per day of oxides of nitrogen emissions reductions.

After discussions with CARB staff, the District staff believes that additional oxides of nitrogen emission reductions could be achieved if CARB staff's proposed oxides of nitrogen fleet average requirements were accelerated. The more stringent fleet average requirements would require that Tier 1 equipment be replaced or retrofitted to meet Tier 3 standards in addition to the uncontrolled (Tier 0) engines that would be covered by the proposed regulations. In addition, after the 2015 timeframe, Tier 2 and Tier 3 engines are proposed to be retrofitted with verified diesel emission control (VDEC) equipment that reduces their diesel PM emissions by 85 percent and meet Tier 4 oxides of nitrogen levels. By 2020, it is further assumed that certain pre Tier 4 engines are replaced or retrofitted to meet the 2010 on-road emissions standards or better.

SCOFRD-02 – FURTHER EMISSION REDUCTIONS FROM CARGO HANDLING EQUIPMENT: This control measure seeks additional emission reductions from cargo handling equipment beyond the state regulation. This measure would implement the proposed San Pedro Bay Ports Clean Air Action Plan beyond the five year horizon of the Clean Air Action Plan. The Plan calls for accelerated turnover of existing equipment with engines that meet 2007 or 2010 on-road emissions standards or Tier 4 off-road emissions standards. This measure could be implemented through further state regulatory actions or the marine ports' authority over its tenants.

SCOFRD-03 – FURTHER EMISSION REDUCTIONS FROM LOCOMOTIVES: This measure calls for all locomotives operating in the Basin to meet Tier 3 equivalent emissions by 2014. In addition, the measure proposes that all locomotives moving in and out of the twin ports in the Southern California region to be equipped with Tier 3-equivalent controls by 2011. Existing technologies can reduce oxides of nitrogen and particulate matter emissions by over 90 percent.

SCOFRD-04 – EMISSION REDUCTIONS FROM AIRPORT GROUND SUPPORT EQUIPMENT: This measure would seek emission reductions from airport ground support equipment through additional electrification originally provided in the MOU terminated by the Air Transport Association. In addition, equipment that could not be electrified would be required to use cleaner fuels or be repowered to meet a more stringent fleet average emissions rate.

SCOFRD-05 – EMISSION REDUCTIONS FROM TRUCK REFRIGERATION UNITS: This measure calls for the development of regulations to reduce emissions from truck refrigeration units based on replacement with electric units or retrofits. CARB could development new retrofit requirements to accelerate NOx reductions. In addition, incentives could be provided to increase fleet turnover prior to regulatory actions.

SCOFFRD-05 – EMISSION REDUCTIONS FROM TRANSPORT REFRIGERATION UNITS: This measure calls for the development of regulations to reduce emissions from transport refrigeration units based on replacement with electric units or retrofits. CARB could development new retrofit or replacement requirements to accelerate NOx reductions. In addition, incentives could be provided to increase fleet turnover prior to regulatory actions.

SCOFFRD-06 – ACCELERATED TURNOVER AND CATALYST BASED STANDARDS FOR PLEASURE CRAFT: This measure proposes to accelerate the turnover of outboard engines, personal watercraft, and inboard/sterndrive boats to ensure that by 2014 that the outboard engines and personal watercraft fleet average meets Tier 3 standard levels (the most stringent levels in place today), and the inboard/sterndrive fleet average meets 2008 standard levels (the cleanest levels currently promulgated). By 2020, CARB is proposing new emission standards for outboard engines and personal watercraft, which by 2020 will have fleet average emission levels approximately three times more stringent than the 2014 levels. This control measure calls for accelerated turnover prior to regulatory mandates. In the 2015 to 2020 timeframe, this measure calls for new inboard/sterndrive fleet average emission standards approximately 10 times more stringent than the 2014 levels. In addition, it is proposed that incentives be provided to accelerate turnover prior to implementation of the new standards.

SCFUEL-01 – FURTHER EMISSION REDUCTIONS FROM GASOLINE FUELS: This measure would seek a maximum sulfur content for gasoline fuels to be set at 10 ppm compared to the current maximum of 30 ppm. This would result in a 67 percent reduction in direct sulfur emissions and somewhat lower oxides of nitrogen emissions.

SCFUEL-02 – FURTHER EMISSION REDUCTIONS FROM DIESEL FUELS: This measure would seek greater use of diesel fuel alternatives such as alternative fuels, gas-to-liquid fuels, dimethyl ether, or other cleaner diesel blends. Emission reduction benefits for oxides of nitrogen, sulfur oxides, and directly emitted particulate matter could result with the use of diesel fuel alternatives. This measure calls for 10 percent of the current diesel fuel be replaced with diesel fuel alternatives.

Since the release of the AQMP and the NOP/IS, CARB has developed and released their proposed measures (see Tables 2-7, 2-8, and 2-9). In order to ensure that the federal eight-hour ozone and PM2.5 standards are achieved, the SCAQMD has proposed additional control measures. These control measures are different than the control measures identified in the NOP/IS. Table 2-12 compares the previous control measures (in the NOP/IS) with the CARB measures and the revised SCAQMD Control Measures.

Policy Option 2: Under this option the state would fulfill its NOx emission reduction obligations under the 2003 AQMP by 2010, which will be at an emission level of 650 tons per day. An additional 213 tons per day would be needed to meet the NOx emission target between 2010 and 2014. Under this option the state could include some of the proposed measures under the first option or other measures that the state identifies as part of the SIP public process

TABLE 2-12

Comparison of Mobile Source Control Measures

PREVIOUS CONTROL NO. ⁽¹⁾	CARB CONTROL MEASURE	SCAQMD OVERLAY	NAME OF CONTROL MEASURE
ONRD-01	ARB-ONRD-1	SCONRD-02	Smog Check Improvements
ONRD-02	ARB-ONRD-2	--	Expanded BAR Vehicle Retirement and Mandatory Part Replacement
ONRD-03	ARB-ONRD-3	SCFUEL-01	California Phase 3 Reformulated Gasoline Modifications
ONRD-04 ⁽²⁾	--	--	More Stringent Motorcycle Standards
ONRD-05	ARB-ONRD-1	--	PM Testing for Light- and Medium-Duty Vehicles
ONRD-06	--	SCONRD-1	Accelerated Penetration of Partial Zero-Emission and Zero-Emission Vehicles
ONRD-07	--	SCFUEL-02	Greater use of Diesel Fuel Alternatives and Diesel Fuel Reformulation
ONRD-08	ARB-ONRD-4	SCONRD-03	Accelerated Retrofits of Heavy-Duty Vehicles
ONRD-09	ARB-ONRD-4	SCONRD-03	In-Use Emission Reductions from On-Road Heavy-Duty Vehicles
ONRD-10	ARB-ONRD-4	--	Further Emission Reductions from Out-of-State/International Registered Heavy-Duty Vehicles
ONRD-11	--	SCLTM-01B	Enhanced Inspection and In-Use Emissions Tracking of Heavy-Duty Vehicles
ONRD-12	ARB-ONRD-5	SCONRD-4	Further Emissions Reductions from Heavy-Duty Trucks Providing Freight Drayage Services
OFFRD-01	ARB-OFFRD-4	SCOFFRD-01	Construction/Industrial Equipment Fleet Modernization
OFFRD-02	ARB-OFFRD-5	SCOFFRD-06	Accelerated Turnover and Catalyst Based Standards for Pleasure Craft
OFFRD-03	ARB-OFFRD-6	--	More Stringent Exhaust Standards for Off-Road Recreational Vehicles
OFFRD-04	ARB-OFFRD-5	SCOFFRD-06	Evaporative Standards for Recreational Vehicles and Pleasure Craft
OFFRD-05	ARB-OFFRD-2	SCOFFRD-03	Further Emission Reductions from Locomotives
OFFRD-06	ARB-OFFRD-1	--	Clean Marine Fuel Requirements for Ocean-Going Marine Vessels
OFFRD-07	ARB-OFFRD-1/3	--	Further Emission Reductions from Ocean-Going Marine Vessels and Harbor Craft While at Berth
OFFRD-08	--	SCOFFRD-02	Further Emission Reductions from Cargo Handling Equipment
OFFRD-09	ARB-OFFRD-1	--	Vessel Speed Reduction

TABLE 2-12 (concluded)

PREVIOUS CONTROL NO. ⁽¹⁾	CARB CONTROL MEASURE	SCAQMD OVERLAY	NAME OF CONTROL MEASURE
OFFRD-10	ARB-OFFRD-1	--	Further Emission Reductions from Ocean-Going Marine Vessels
OFFRD-11	--	SCLTM-02	Emission Reductions from Aircraft
OFFRD-12 ⁽²⁾	--	--	Lower Exhaust and Evaporation Standards and Fleet Modernization for Lawn and Garden Equipment
OFFRD-13	--	SCOFFRD-04	Emission Reductions from Airport Ground Support Equipment
CONS-01	ARB-CONS-1	SC-LTM-03	Further Emission Reductions from Consumer Products
LTM-04 ⁽²⁾	---	MOB-07	Concurrent Reductions from Global Warming Strategies
LTM-05 ⁽²⁾	---	---	Further VOC Reductions from Mobile Sources
NEW	--	SCOFFRD-05	Further Emission Reductions from Truck Refrigeration Units
NEW	--	SC-LTM-01A	Further Emission Reductions from On-Road Mobile Sources (On-Road NOx Black Box)
NEW		SCLTM-01B	Further Emission Reductions from On-Road Heavy-Duty Vehicles (On-Road NOx Black Box)
NEW	--	SC-LTM-02	Further Emission Reductions from Off-Road Mobile Sources (Off-Road NOx Black Box)

1 Reported in the NOP/IS and the AQMP

2 No longer included as a control measure in the 2007 AQMP.

Under Option 1, the projected 2010 base year emissions for NOx is estimated to be at 775 tons/day. When the state submitted the 2003 AQMP to the U.S. EPA, the State provided as its obligation to reduce NOx emissions by 156 tons/day in order to meet the one-hour ozone ambient air quality standard by 2010. Based on the state's actions since the submittal of the 2003 AQMP, 32 tons/day of NOx emission reductions have been achieved, leaving another 125 tons/day to be achieved by 2010. After 2010, an additional 203 tons/days of NOx emission reductions are needed to meet the federal PM2.5 ambient air quality standard by 2014.

The state may choose to meet the 2010 obligation through a combination of its proposed control strategy plus the measures provided under Option 1 or any other measures the state may identify. In addition, the state would need to identify additional reductions to be implemented by 2014 to meet the NOx emissions reduction levels needed to attain the federal PM2.5 ambient air quality standard. Again, this can be any set of measures the state identifies for this option, which could be a combination of its proposed control strategy, measures identified under Option 1, or any other measure not identified at this time.

Policy Option 3: The third option is based on the same rate of progress under Policy Option 1, but it relies heavily on public funding assistance to achieve the needed NOx reductions via accelerated fleet turnover to post-2010 on-road emission standards or the cleanest off-road

engine standards in effect today or after 2010. This would include funding for the replacement of on-road heavy-duty vehicles, off-road mobile equipment, pleasure craft, and off-road vehicles.

Under Policy Option 3, CARB and the District would assume the responsibility of implementing the incentive programs based on specific funding levels designated for this purpose. Based on the analysis performed for the Carl Moyer program, up to an estimated \$730 million per year is needed between 2009 and 2014. In addition, significant funding would be made available beginning in mid-2008 through 2014. The total public funding estimated to achieve the additional NOx emission reductions of 70 tons/day as identified in Table 2-11, is about \$3.65 billion based on the current Carl Moyer Program cost-effectiveness criteria of \$14,300/ton with a 10-year project life. This is a conservative estimate since many of the projects would be more cost-effective than the \$14,300/ton criteria.

The total public funding needed of about \$730 million per year would need to begin in mid-2008. Currently, the District receives about \$55 million per year, which a significant portion has been allocated by the District Governing Board to accelerate vehicle turnover. In addition, the Mobile Source Emissions Reduction Review Committee (MSRC) allocates a significant amount of funds to cleaner vehicles. The MSRC is currently allocating funding assistance for on-road engines meeting 2010 emissions standards and replacement of off-road equipment with current commercially available Tier 3 engines. In order to implement this option, additional funding must be identified within the next year and a half. Funding proposals such as user fees, surplus fuel tax, or other mechanisms such as port tariff fees (which would facilitate cleanup of goods movement related sources) are examples of funds that could be made available to cover the implementation of this option.

Relative to the emission reductions used for the environmental analysis, each policy option would reach the same NOx emissions levels as identified in the PM2.5 attainment demonstration (i.e., 443 tons/day of remaining NOx emissions). CARB has identified 125 tons/day of NOx emission reductions from its proposed control strategy. An additional 70 tons/day of NOx emission reductions would be needed to demonstrate attainment. As such, all three policy options would achieve the additional 70 tons/day of reductions, but through different implementation mechanisms and on different implementation schedules.

2.6.3 LONG-TERM CONTROL MEASURES

In order to demonstrate attainment of the eight-hour ozone standard, long-term emission reductions above and beyond those achieved from short-term and mid-term measures by the SCAQMD, CARB, SCAG, and U.S. EPA are required by the 2023 timeframe. Based on the District's recent modeling analysis which incorporates the latest revisions to the mobile source inventory, a NOx-heavy control approach supplemented with additional VOC reductions will be the most effective ozone attainment strategy for this region. By 2023, mobile sources would account for over 90 percent of NOx emissions in the Basin. Therefore, the long-term strategy for this Plan primarily focuses on reductions from mobile sources. Long-term reductions are primarily based on long-term measures that anticipate the development of new control techniques or improvement of existing control technologies. The federal Clean Air Act (CAA) Section 182(e)(5) specifically authorizes the inclusion of such long-term measures for extreme

ozone nonattainment areas – these measures are often referred to as the “black box.” The size of the black box is based on the difference between the final attainment target (carrying capacity) for each pollutant and the emissions remaining after the implementation of short-term and mid-term control measures.

Achieving the reductions ascribed to the black box by the 2024 attainment deadline will pose a tremendous challenge to the agencies, businesses, and residents of California. Based on the latest emission inventory and modeling analysis, the overall reduction targets for meeting the eight-hour ozone standard are 116 tons per day of VOC and 383 tons per day of NO_x in 2024. After implementation of the short-term and mid-term control measures, the size of the “black box” is estimated to be 28 tons per day of VOC and 179 tons per of NO_x reductions in 2023, representing 41 percent of the overall combined VOC and NO_x reductions needed for ozone attainment.

Table 2-13 provides a list of some of the advanced technologies and innovative control approaches which could be relied upon to achieve the long-term reductions needed for ozone attainment highlighting the level of stringency and aggressiveness of controls required.

The four long-term control measures proposed for ozone attainment are briefly described here. Long-term NO_x reductions are entirely attributed to mobile sources since these sources account for over 90 percent of NO_x emissions in the Basin. More detailed descriptions of these measures are provided in Appendix IV-B-2.

SCLTM-01A – FURTHER REDUCTIONS FROM ON-ROAD MOBILE SOURCES: This control measure proposes to achieve further NO_x reductions from on-road mobile source categories beyond the reductions achieved from the short-term measures through 1) accelerated turn-over of high-emitting vehicles and penetration of ATPZEVs and ZEVs; and 2) expanded modernization of heavy-duty vehicles through replacements or retrofits; 3) fuel reformulations and use of diesel fuel alternatives; and 4) advanced near-zero, and zero emitting cargo transportation technologies.

SCLTM-01B – FURTHER EMISSION REDUCTIONS FROM ON-ROAD HEAVY-DUTY VEHICLES: This control measure proposes the development of an expanded inspection and maintenance (I/M) program for heavy-duty diesel trucks by 2015. Specifically, the current smoke inspection program should be expanded to include (1) a visual under-the-hood inspection of the emission control devices, (2) an electronic check of the truck’s on-board computer, and (3) use of remote sensing technology to assess in-use heavy-duty diesel truck emissions.

SCLTM-02 – FURTHER REDUCTIONS FROM OFF-ROAD MOBILE SOURCES: This control measure proposes to achieve further NO_x reductions from various off-road mobile source categories beyond the reductions achieved from the short-term measures through 1) accelerated turn-over of existing equipment and vehicles and replacement with new equipment meeting the new engine standards; 2) retrofit of existing vehicles and equipment with add-on controls such as SCR; and 3) new engine standards (e.g., aircraft, ships).

TABLE 2-13

Possible Approaches for Long-Term Control Measures

Light Duty Vehicles	<ul style="list-style-type: none"> ▪ Extensive retirement of high-emitting vehicles and accelerated penetration of ATPZEVs and ZEVs
On-Road Heavy Duty Vehicles	<ul style="list-style-type: none"> ▪ Expanded modernization and retrofit of heavy-duty trucks and buses ▪ Expanded inspection and maintenance program ▪ Advanced near-zero and zero-emitting cargo transportation technologies
Off-Road Vehicles	<ul style="list-style-type: none"> ▪ Expanded modernization and retrofit of off-road equipment
Fuels	<ul style="list-style-type: none"> ▪ More stringent gasoline and diesel specifications; Extensive use of diesel alternatives
Marine Vessels	<ul style="list-style-type: none"> ▪ More stringent emission standards and programs for new and existing ocean-going vessels and harbor craft
Locomotives	<ul style="list-style-type: none"> ▪ Advanced near-zero and zero emitting cargo transportation technologies
Pleasure Craft	<ul style="list-style-type: none"> ▪ Accelerated replacement and retrofit of high-emitting engines
Aircraft	<ul style="list-style-type: none"> ▪ More stringent emission standards for jet aircraft (engine standards, clean fuels, retrofit controls)
Consumer Products	<ul style="list-style-type: none"> ▪ Ultra Low-VOC formulations; Reactivity-based controls
Renewable Energy	<ul style="list-style-type: none"> ▪ Accelerated use of renewable energy and development of hydrogen technology and infrastructure
AB32 Implementation	<ul style="list-style-type: none"> ▪ Concurrent criteria pollutant reduction technologies

SCLTM-03 – FURTHER REDUCTIONS FROM CONSUMER PRODUCTS: After implementation of adopted regulations and the short-term measure, consumer products category would remain the largest VOC category in the Basin at 88 tons per day in 2023. This measure proposes to implement low-VOC technologies developed for stationary sources into categories with similar uses in consumer products. In addition, the use of lower reactive VOC compounds could offer the potential for achieving equivalent reductions.

In addition to the proposed long-term measures described above, reductions from the following programs can be used to fulfill, in part, the “black-box” commitment:

- NSR: Any excess reductions from the NSR program due to BACT or offset ratio beyond the 2007 AQMP assumptions;

- AQMD short-term measures: Any emission reductions achieved from these measures that are beyond the District's SIP commitment will be used to offset CARB's 'black-box' commitment.

2.6.4 REGIONAL TRANSPORTATION STRATEGY AND CONTROL MEASURES

Transportation plans within the district are statutorily required to conform to air quality plans in the region, as established by the 1990 Federal Clean Air Act and subsequently reinforced by the Intermodal Surface Transportation and Efficiency Act (ISTEA), Transportation Equity Act for the 21st-Century (TEA-21) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The region must demonstrate that its transportation plans and programs conform to the mandate to meet the NAAQS in a timely manner

The long-term transportation planning requirements for emission reductions from on-road mobile sources within the district are met by SCAG's Regional Transportation Plan (RTP) which is developed every four years with a 20-year planning horizon. The short-term implementation requirements of the Transportation Conformity Rule are met by SCAG's biennial Regional Transportation Improvement Program (RTIP), the first two years of which are fiscally constrained (funded) and demonstrate timely implementation of a special category of transportation projects called Transportation Control Measures (TCMs).

The region is required to identify TCMs, as specified in the Federal Clean Air Act (Section 108 (f)(1)(A)) and also by U.S. EPA's Transportation Conformity Rule (40 CFR Part 93). In the event a region falls out of conformity, only those projects identified as TCMs may go forward. In general, TCMs are those projects that provide emission reductions from on-road mobile sources based on changes in the patterns and modes by which the regional transportation system is used. The various strategies considered as part of the 2004 RTP and 2006 RTIP are defined, collectively, as a single TCM, with specific strategies grouped into the following three components:

- High Occupancy Vehicle (HOV) Strategy: This strategy attempts to reduce the proportion of commute trips made by single occupancy vehicles - the clearly preferred mode of travel within the southern California region, constituting over 75 percent of all home-to-work trips according to the 2000 U.S. Census - by increasing the share of HOV ridership within the region. HOV lanes are one example of such projects where particular segments of heavily used freeways are designated for exclusive use by HOV vehicles, particularly during rush-hour traffic. The purpose of such measures is to make car-pooling and ride-sharing practices more attractive to individuals who may otherwise prefer the convenience of a single occupancy vehicle commute trip.
- Transit and Systems Management: This strategy relies primarily on providing facilities and infrastructure that incentivize an increase in the proportion of regional trips that make use of transit as a transportation mode. This strategy also promotes the use of alternative modes of transportation (e.g., bicycle and pedestrian modes) and would incentivize increases in the average vehicle occupancy (AVO) or ridership (AVR) by facilitating

van-pools, smart shuttles and other such strategies. Systems management measures include projects such as grade separation and traffic signal synchronization.

- **Information-based Transportation:** This strategy relies primarily on innovatively providing information in a manner that successfully influences the ways in which individuals use the regional transportation system. Typically, such strategies induce changes in trip behavior that beneficially influence travel to reduce congestion and air pollution impacts. One strategy attempts to increase the proportion of ride-sharing and car-pooling trips by providing information that makes it easier to match up people traveling to and from particular sets of origin and destination points. Another strategy attempts to shift the time-profile of demand - thus, transportation demand management (TDM) - by redistributing traffic flows from peak to off-peak hours. This strategy relies on providing single occupancy vehicle operators with realistic and near-real time estimates of congestion using internet-based information networks in an effort to influence their decision to defer traveling to a less congested time of day.

SCAG's Regional Council approved the transportation control measures and strategies included in the 2004 RTP and, subsequently, the investment commitments contained in the 2006 RTIP. These measures and recommendations have accordingly been moved forward for inclusion in the region's air quality plans and are included as part of the 2007 AQMP. The impacts of implementation of these TCMs were evaluated in a separate CEQA document, the Final 2004 Regional Transportation Plan Program Environmental Impact Report (SCH No. 2003061075) (SCAG, 2004). A list of the TCMs from the 2004 RTP can be found in Appendix B. The Draft PEIR for the 2007 AQMP relies on the environmental analyses in the SCAG 2004 Final PEIR for the RTP for the evaluation of the environmental impacts of implementing the TCMs. Environmental impacts from implementing the TCMs are addressed in the Draft PEIR for the 2007 AQMP under cumulative impacts.

2.7 SCAQMD'S SIP EMISSIONS COMMITMENT

The SIP commitment of the 2007 AQMP is structured into two components: reductions from previously adopted rules and reductions from the 2007 AQMP control measures. Taken together, these reductions are relied upon to demonstrate expeditious progress and attainment of the federal PM_{2.5} and eight-hour ozone standards.

For purposes of implementing an approved SIP, the SCAQMD is committed to adopting and implementing control measures that will achieve, in aggregate, emission reductions specified in Table 2-14 (short- and mid-term measures) i.e., 19.3 tons per day of VOC emission reductions by 2023.

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TABLE 2-14
Short- and Mid-Term VOC, NOx, SOx, and PM2.5 Emission Reductions Commitment by SCAQMD to be
Achieved Through Rule Adoption and Implementation –2014 Annual Average Inventory/2023 Planning Inventory
(Tons/Day)

Year	VOC		PM2.5		NOx		SOx	
	Based on Adoption Date	Based on Implementation Date ^a	Based on Adoption Date	Based on Implementation Date ^a	Based on Adoption Date	Based on Implementation Date ^a	Based on Adoption Date	Based on Implementation Date ^a
2007	0.8/0.7	---	0.7/0.7	---	0.4/0.4	---	---	---
2008	3.1/4.2	---	0.4/0.4	0.7	5.6/6.9	---	3.0/3.0	---
2009	4.5/5.2	---	0.4/2.2	---	0.8/1.9	---	---	---
2010	2.0/9.2	3.6	---	0.4	---	---	---	---
2011	---	0.6	---	---	---	---	---	---
2012	---	4.0	---	---	---	---	---	---
2013	---	---	---	---	---	---	---	---
2014	---	---	---	---	---	4.1	---	3.0
2015	---	---	---	---	---	---	---	---
2016	---	---	---	---	---	---	---	---
2017	---	---	---	---	---	---	---	---
2018	---	---	---	---	---	---	---	---
2019	---	---	---	---	---	---	---	---
2020	---	---	---	---	---	---	---	---
2021	---	---	---	---	---	---	---	---
2022	---	---	---	---	---	---	---	---
2023	---	11.1	---	2.2	---	5.2	---	---
Total	10.4/19.3	19.3	1.5/3.3	3.3	6.8/9.2	9.2	3.0/3.0	3.0

^a Represents the final, full implementation date; typically a rule contains multiple implementation dates.

Overall Emission Reductions

A summary of emission reductions for the proposed control measures for the years 2014 and 2023 is provided in Tables 2-15 through 2-17. Projected emission reductions shown in Tables 2-15 through 2-17 are based on implementing control measures under local, state, and federal jurisdiction. Emission reductions represent the difference between the projected future baseline and the remaining emissions. For 2014, Table 2-15 identifies projected reductions based on the annual average inventory for all criteria pollutants (VOC, NO_x, CO, SO_x, and PM_{2.5}). It represents the level of emission reductions needed to achieve the federal PM_{2.5} standard. For 2023, Tables 2-16 and 2-17 identify projected reductions based on the summer planning inventory for VOC and NO_x emissions and the winter planning inventory for CO and NO_x emissions. Emission reductions by 2023 illustrate the extent of controls needed for achieving the federal ozone standard.

TABLE 2-15
Emission Reductions for 2014 Based on
Average Annual Emissions Inventory (tons per day)

Sources	VOC	NO _x	CO	SO _x	PM _{2.5}
Year 2014 Baseline⁽¹⁾	527	654	2577	43	102
Baseline Adjustment ⁽²⁾	(0.5)	8	---	---	---
Emission Reductions:					
District's Short-Term and Mid-Term Stationary Source Control Measures	10	7	0	3	2
CARB's Draft Proposed State Strategy	42	125	---	20	9
District Staff's Proposed Additional Mobile Source Control Measures	7	71	38	1	3
Total Reductions (All Measures)	59	203	38	24	14
2014 Remaining Emissions	469	443	2535	19	88

¹ Emission benefits from SCAG's 2004 Regional Transportation Strategy and Control Measures are already reflected in the AQMP baseline.

² Reflects baseline inventory adjustments for CARB's adopted rules in 2006 for large spark-ignited engines (2.4 t/d NO_x) and consumer products (4.5 t/d VOC) emissions for the purpose of set-aside tracking (5 t/d VOC increase) and emission benefits from Carl Moyer Program (4.2 t/d NO_x and 0.2 t/d PM_{2.5}) and NSR Program benefits (1.2 t/d NO_x) () in table denotes emission increases. See Appendix III.

TABLE 2-16**Emission Reductions for 2023 Based on Summer Planning Inventory (tons per day)**

Sources	VOC	NO _x
Year 2023 Baseline⁽¹⁾	536	506
Baseline Adjustment ⁽²⁾	(0.2)	9
Emission Reductions:		
District's Short-Term and Mid-Term Stationary Source Control Measures	19	9
CARB's Draft Proposed State Strategy	52	139
District Staff's Proposed Additional Mobile Source Control Measures	17	56
Long-Term Measures ⁽³⁾	28	179
Total Reductions (All Measures)	116	383
2023 Remaining Emissions	420	114

¹ Emission benefits from SCAG's 2004 Regional Transportation Strategy and Control Measures are already reflected in the AQMP baseline.

² Reflects baseline inventory adjustments for CARB's adopted rules in 2006 for large spark-ignited engines (1.9 t/d NO_x) and consumer products (4.8 t/d VOC) emissions for the purpose of set-aside tracking (5 t/d VOC increase) and emission benefits from Carl Moyer Program (6.2 t/d NO_x) and NSR Program benefits (1.2 t/d NO_x) () in table denotes emission increases. See Appendix III.

³ Includes long-term reductions from SCLTM-01A, SCLTM-01B, SCLTM-02 and SCLTM-03. (Refer to Appendix IV-B2.)

TABLE 2-17**Emission Reductions for 2023 Based on Winter Planning Inventory (tons per day)**

Sources	CO	NO _x
Year 2023 Baseline⁽¹⁾	2058	520
Baseline Adjustment ⁽²⁾	0	9
Emission Reductions:		
District's Short-Term and Mid-Term Stationary Source Control Measures	0	12
CARB's Draft Proposed State Strategy	---	140
District Staff's Proposed Additional Mobile Source Control Measures	92	52
Long-Term Measures ³	---	186
Total Reductions (All Measures)	92	340
2023 Remaining Emissions	1966	121

¹ Emission benefits from SCAG's 2004 Regional Transportation Strategy and Control Measures are already reflected in the AQMP baseline.

² Reflects baseline inventory adjustments for CARB's adopted rules in 2006 for large spark-ignited engines (1.9 t/d NO_x), emission benefits from Carl Moyer Program (6.2 t/d NO_x) and NSR Program benefits (1.2 t/d NO_x) See Appendix III.

³ Includes long-term reductions from SCLTM-01A, SCLTM-01B, and SCLTM-02. (Refer to Appendix IV-B2.)

2.8 ATTAINMENT DEMONSTRATION

2.8.1 MODELING

Air quality modeling is an integral part of the planning process to achieve clean air. The Basin is currently designated nonattainment for PM_{2.5}, and severe-17 nonattainment for ozone. The initial regional modeling analyses that were conducted as part of the ozone attainment demonstrations for the Basin and Coachella Valley portion of the Salton Sea Air Basin indicated that the severity of the ozone problem warranted both flexibility in defining additional control measures as well as time to achieve the standard. As a consequence, the District will request that U.S. EPA accept a voluntary reclassification for the Basin from “Severe-17” to “Extreme” nonattainment through the Governing Board’s adoption of this 2007 AQMP and resolution. This action will enable the use of long-term measures in the control strategy and extend the attainment date to June 15, 2024. In addition, the District will request that U.S. EPA accept a voluntary reclassification for the Coachella Valley portion of the Salton Sea Air Basin from “Serious” to “Severe-15” nonattainment to extend the attainment date to June 15, 2018.

PM_{2.5} and ozone - are linked to common precursor emissions. The SCAQMD’s goal is to develop an integrated control strategy which: 1) ensures that ambient air quality standards for all criteria pollutants are met by the established deadlines in the federal Clean Air Act (CAA); and 2) achieves an expeditious rate of reduction towards the state air quality standards. A two-step modeling process has been conducted for the 2007 AQMP. First, future year annual and 24-hour average PM_{2.5} is simulated to demonstrate attainment by 2015. The future year 8-hour average ozone emissions control strategy then builds upon the PM_{2.5} strategy to demonstrate attainment of the federal 8-hour average ozone standard in 2021. This two-step approach is consistent with the approach used in the 2003 AQMP to first demonstrate attainment in 2006 of the PM₁₀ standard and subsequent attainment of the 1-hour average ozone standard in 2010.

The model selected for the 2007 AQMP attainment demonstrations is the Comprehensive Air Quality Model with Extensions (CAMx), using SAPRC99 chemistry. Moreover, using this model and chemistry package is consistent with the previous recommendation made by outside peer reviewers. CAMx is a state-of-the-art air quality model that can simulate ozone and PM_{2.5} concentrations together in a “one-atmosphere” approach for the attainment demonstrations. The CAMx one atmosphere chemistry approach is more mass consistent and takes advantage of an advanced dispersion platform.

2.8.2 PM_{2.5} ATTAINMENT

Under the federal Clean Air Act, the Basin must comply with the federal PM_{2.5} air quality standards by April 2010 [Section 172(a)(2)(A)]. An extension of up-to five years could be granted if attainment cannot be demonstrated and several other conditions are satisfied. The SCAQMD is formally requesting U.S. EPA to grant the five-year extension based upon the severity of the problem and the modeled attainment

demonstration that clearly indicates that significant reductions in daily emissions of NO_x and SO_x are required to meet the 2015 attainment date. Based on the results of modeling, the future annual average PM_{2.5} air quality projections at eight PM_{2.5} monitoring sites will attain the federal annual standard by the year 2015. None of the sites will meet the state annual PM_{2.5} standard (12 µg/m³) by 2015. Implementation of the eight-hour ozone control strategy will also contribute to lowering annual PM_{2.5} concentrations.

The projections for the 24-hour state and federal standards indicate that all areas will be in attainment of the federal 24-hour standard (65 µg/m³) by 2015. On September 21, 2006 the U.S. EPA approved a revised PM_{2.5} 24-hr standard of 35 µg/m³ which will replace the current standard of 65 µg/m³. However, the 2007 AQMP does not address attaining the newly revised 24-hour PM_{2.5} standard (35 µg/m³) by 2015 or 2021. The projected 24-hour PM_{2.5} three-year design value is expected to nominally exceed the new PM_{2.5} standard by 14 percent. While the estimated 2021 design value is projected to be close to the 24-hour standard, additional emissions controls may be required to ensure future year compliance. California does not have a separate 24-hour PM_{2.5} standard.

2.8.3 PM10 ATTAINMENT

In general, all monitoring locations in the Basin are predicted to continue to meet the federal 24-hour PM₁₀ standard (150 µg/m³) through 2015. While the bulk of the sites are predicted to have concentrations less than half of the current federal standard only one quarter of the locations are projected to meet the more restrictive California 24-hour average PM₁₀ standard of 50 µg/m³.

2.8.4 OZONE ATTAINMENT

The Basin is designated as a Severe-17 non-attainment area, and must meet the federal 8-hour ozone air quality standard by 2021. Selected days from six meteorological episodes are used in the ozone attainment demonstration modeling. The emission inventories were modeled for the 2002 and 2020 baseline as well as the controlled scenarios with and without the long-term control measures. Without long-term measures, the regional modeling results indicate that the federal eight-hour ozone standard would not be attained. Attainment will require additional long-term emissions reductions based upon the development of new technology. The inclusion of the additional long term-control measures will require the SCAQMD to petition U.S. EPA prior to or at submittal of the 2007 AQMP to revise the current attainment status from Severe-17 to Extreme to enable the use of long-term measures under Section 182(e)(5) of the CAA. Similarly, the Coachella Valley will require additional time to achieve the ozone standard however it will not require the use of long term measures for attainment.

Table 2-18 summarizes the expected year for attainment of the various federal and state standards for the four pollutants analyzed. As shown, the Basin will be in compliance with federal standards by the year 2024. The Basin will require additional time beyond 2021 to meet the state ozone, PM_{2.5} and PM₁₀ standards.

TABLE 2-18
Expected Year of Compliance with State and Federal
Standards for the Four Criteria Pollutants

Pollutant	Standard	Concentration Level	Expected Compliance Year
Ozone	NAAQS 8-hours	84 ppb	2024
	CAAQS 1-hour	90 ppb	Beyond 2024
	CAAQS 8-hours	70 ppb	Beyond 2024
PM _{2.5}	NAAQS Annual	15 ug/m ³	2015
	NAAQS 24-hours	65 ug/m ³	2005
	NAAQS 24-hours (revised)	35 ug/m ³	Beyond 2024
	CAAQS Annual	12 ug/m ³	Beyond 2024
PM ₁₀	NAAQS 24-hours	150 ug/m ³	2000
	CAAQS 24-hours	50 ug/m ³	Beyond 2024
	CAAQS Annual	20 ug/m ³	Beyond 2024
CO*	NAAQS 1-hour	35 ppm	1990
	NAAQS 8-hours	9 ppm	2002
	CAAQS 8-hours	9 ppm	2002
NO ₂	NAAQS Annual	0.0534 ppm	1995
	CAAQS 24-hours	0.25 ppm	2003

* The Basin has been in attainment of the federal 1-hour CO air quality standard since 1990. In 2002, the Basin attained the 8-hour CO air quality standard. The Basin is still considered nonattainment until a petition for redesignation is approved by EPA.

2.8.5 DISTRICT EMISSION CARRYING CAPACITY (EMISSIONS BUDGET)

The SCAQMD is required to separately identify the emission reductions and corresponding type and degree of implementation measures required to meet federal and state ambient air quality standards. Section 40463(b) of the California State Health and Safety Code specifies that, with the active participation of the SCAG, a South Coast Air Basin emission carrying capacity for each state and federal ambient air quality standard shall be established by the SCAQMD for each formal review of the 2007 AQMP and shall be updated to reflect new data and modeling results. A carrying capacity is defined

as the maximum level of emissions that enable the attainment and maintenance of an ambient air quality standard for a pollutant.

Emission carrying capacity as defined in the Health and Safety Code is an overly simplistic measure of the Basinwide allowable emission levels for specific ambient air quality standards. It is highly dependent on the spatial and temporal pattern of the emissions. Because of the multi-component nature of PM_{2.5}, the carrying capacity for the contributing emittants can vary significantly and like ozone it is a non-linear function among their precursors.

Based on modeling results, a set of carrying capacities can be defined corresponding to federal and state ambient air quality standards for annual PM_{2.5}, and ozone. VOC and oxides of nitrogen are used for ozone. PM_{2.5} additionally requires reductions of sulfur oxides and directly emitted PM_{2.5}. Table 2-19 shows the emissions carrying capacities for the Basin to meet federal air quality standards. These estimates are based on emission patterns estimated for each of the federal attainment years: 2015 for PM_{2.5}, and 2024 for ozone.

TABLE 2-19
Emissions Carrying Capacity Estimations⁽¹⁾ for the South Coast Air Basin
based on the Planning Inventory (tons/day)

PM_{2.5} Attainment Strategy to Meet NAAQS (2015)			
VOC	NO _x	SO _x	PM _{2.5}
469	443	19	88
Ozone Attainment Strategy to Meet NAAQS (2024)			
VOC	NO _x	CO	
420	114	1,966	

- (1) On October 6, 2006, CARB released its preliminary estimates of the Basin carrying capacity for PM_{2.5}. Based on rollback, CARB estimated that new regional emissions reductions of at least 25 percent NO_x, 10 percent VOC and 50 percent SO_x would be needed beyond the 2014 baseline to meet the 2015 standard. CARB also stated that further reductions beyond those previously defined may be required to achieve attainment in areas of the Basin with the most persistent PM_{2.5} problems. CARB did not release any preliminary target for future year Basin eight-hour average ozone attainment.

2.8.6 TRANSPORTATION CONFORMITY BUDGETS

The 2007 AQMP sets forth the strategy for achieving the federal eight-hour ozone, PM_{2.5}, and maintaining the federal CO and NO₂ standards. For on-road mobile sources, Section 176(c) of the CAA requires that transportation plans and programs do not cause or contribute to any new violation of a standard, increase the frequency or severity of any existing violation, or delay the timely attainment of the air quality standards. Therefore, on-road mobile sources must "conform" to the attainment demonstration contained in the SIP.

U.S. EPA's transportation conformity rule, found in 40 CFR parts 51 and 93, details the requirements for establishing motor vehicle emissions budgets in SIPs for the purpose of ensuring the conformity of transportation plans and programs with the SIP attainment demonstration. The on-road motor vehicle emissions budgets act as a "ceiling" for future on-road mobile source emissions. Exceedances of the budget indicate an inconsistency with the SIP and could jeopardize the flow of federal funds for transportation improvements in the region. As required by the CAA, a comparison of regional on-road mobile source emissions to these budgets will occur during the periodic updates of regional transportation plans and programs.

The on-road motor vehicle emissions estimates for the 2007 AQMP were analyzed using the EMFAC2007 Working Draft for estimating on-road mobile source emissions in conjunction with the most recent motor vehicle activity data from SCAG. For the 2007 AQMP, emissions forecasts are provided in Tables 2-20, 2-21 and 2-22 for milestone years 2014, 2023, and 2030. Emissions were generated for the summer, winter, and annual average planning inventory for each milestone year. The PM_{2.5} emissions budgets for PM_{2.5}, and the PM_{2.5} precursors VOC and NO_x, are derived from the annual average inventory. These budgets reflect existing control programs and new commitments for technology and transportation control measures. The ozone emissions budgets for VOC and NO_x are derived from the summer planning inventory and the reductions from defined new measures in the 2007 SIP. The CO and NO₂ emissions budgets established in the 2003 AQMP for CO and NO_x, respectively, remain unchanged.

The emissions budgets for ozone and PM_{2.5} are provided here for up to the respective attainment year. However, since transportation analyses are needed beyond the attainment dates, the carrying capacities for PM_{2.5} and ozone attainment demonstration also serve as the budgets for future years (e.g., 2030 for PM_{2.5} and ozone). Ozone precursor emissions from motor vehicles are projected to continue declining through these extended periods as newer vehicles are introduced.

TABLE 2-20

Preliminary Motor Vehicle Emissions Budgets: PM2.5⁽¹⁾
(Annual Average - Tons Per Day)

		2014	2023	2030
VOC	Baseline Inventory	144.1	99.0	83.2
	New Defined State Measures ⁽²⁾	22.5	15.1	12.8
	Mobile Source Emission Budgets⁽³⁾	122	84	71
NOx	Baseline Inventory	292.0	164.0	132.3
	New Defined State Measures ⁽²⁾	102.4	53.1	44.8
	Mobile Source Emission Budgets⁽³⁾	190	111	88
PM2.5	Baseline Inventory	16.8	16.0	16.6
	Re-entrained road dust (paved)	19.0	20.8	21.4
	Re-entrained road dust (unpaved)	1.0	1.0	1.0
	Road Construction dust	0.2	0.2	0.3
	Adjusted Inventory	37.0	38.0	39.3
	New Defined State Measures ⁽²⁾	5.1	2.3	2.2
	Mobile Source Emission Budgets⁽³⁾	32	36	38

(1) 2030 budget is applicable to all future years beyond 2030.

(2) Based on CARB's Proposed State Strategy for California's 2007 SIP and the SCAQMD.

(3) Rounded to the nearest ton.

TABLE 2-21

Preliminary Motor Vehicle Emissions Budgets: 8-Hour Ozone
(Summer Planning - Tons Per Day)⁽¹⁾

		2014	2023	2030
VOC	Baseline Inventory	147.9	103.2	86.6
	New Defined State Measures ⁽²⁾	23.1	15.6	13.2
	Mobile Source Emissions⁽³⁾	125	88	74
NOx	Baseline Inventory	286.8	161.3	130.5
	New Defined State Measures ⁽²⁾	101.6	52.4	44.4
	Mobile Source Emissions⁽³⁾	186	109	87

(1) 2030 budget is applicable to all future years beyond 2030.

(2) Based on CARB's Proposed State Strategy for California's 2007 SIP and the SCAQMD.

(3) Rounded to the nearest ton.

TABLE 2-22

**Preliminary Motor Vehicle Emissions Budgets: Carbon Monoxide
(Winter Planning - Tons Per Day)⁽¹⁾**

CO		2002
	Baseline Inventory	3,630
	New Defined State Measures	0.0
	Mobile Source Emission Budgets⁽²⁾	3,630

(1) 2002 budget applicable to future years, including the last year of maintenance plan (i.e., 2010).

(2) Rounded up to the nearest ton.

2.9 IMPLEMENTATION

Implementation of the 2007 AQMP's strategies requires a cooperative partnership of government agencies at the federal, state, regional and local level (Table 2-23). At the federal level, the U.S. EPA and other agencies are charged with reducing emissions from primarily federally controlled sources such as commercial aircraft, trains, marine vessels and other sources through establishing emission standards for example.

TABLE 2-23

Agencies Primarily Responsible for Implementation of the 2007 AQMP

Agency	Responsibilities
U.S. EPA	Forty-nine state ⁴ mobile vehicle emission standards; airplanes, trains, and ships; and new off-road construction & farm equipment below 175 hp.
CARB	On-road/Off-road vehicles Motor vehicle fuels; and, Consumer products.
SCAQMD	Stationary (industrial/commercial) and area sources; Indirect sources; and some mobile sources (e.g., visible Emission and use regulations from trains and ships).
SCAG	AQMP conformity assessment; Adoption of Regional Transportation Improvement Program; and Transportation Control Measures.
Local Government/California Transportation Commission	Transportation and local government actions (i.e., land use approvals and ports; and transportation facilities).

⁴ All states except California.

At the state level, CARB is responsible for motor vehicle emissions and consumer products. At the regional level, the SCAQMD is responsible for the overall development and implementation of the 2007 AQMP. The SCAQMD is specifically authorized to reduce emissions from stationary, indirect, some area sources and has limited authority to reduce emissions from mobile sources. The SCAQMD implements its responsibilities with participation from the regulated community through an extensive rule development and implementation program. This approach maximizes the input of those parties affected by any proposed rules or rule amendments through consultation meetings, public workshops, and ongoing working groups.

At the local level, local governments serve an important role in developing and implementing transportation control measures. SCAG also provides assessments for conformity of regionally significant projects with the overall AQMP, and is responsible for the adoption of the annual RTIP.

2.10 ADDITIONAL CONSIDERATIONS

2.10.1 2030 OZONE AIR QUALITY

With continued growth in the southern California, concerns have been raised whether the Basin can maintain the federal ozone air quality standard beyond 2021/2024. For this reason, an ozone air quality analysis for 2030 was performed. Data on the projected growth in the Basin and surrounding areas were provided by SCAG.

The future year (2030) ozone air quality projections suggest that additional emission reductions will be required to offset growth to maintain the eight-hour ozone standard. Mobile source emission projections through 2030 indicate that continued reductions in VOC, NO_x and CO will occur as newer vehicles are introduced. Mobile source VOC and NO_x emissions will be reduced by about 25 and 15 percent, respectively. CO emissions will be reduced by roughly 15 percent, assuring continued maintenance of the federal CO standard. Nominal growth is projected in the area source category that will partially act to offset the mobile source VOC emission reductions by 2030, however, since the projected growth in this category is small, it is not expected to reverse the trend of lowering ambient ozone concentrations.

2.10.2 NEW FEDERAL AIR QUALITY STANDARDS FOR FINE PARTICULATES

As part of the requirements of the CAA, the U.S. EPA must review the ambient air quality standards and propose revisions every five years, if necessary, to “protect public health with an adequate margin of safety,” based on the latest, best-available science. In promulgating new standards, U.S. EPA follows a formal review process. Evaluations of numerous scientific studies led to the conclusion that existing standards for the two pollutants, ozone and particulates, were not adequately protective of public health and resulted in the promulgation of new standards. In September 2006, U.S. EPA revised the national ambient air quality standards for particulate matter by strengthening the 24-hour

PM2.5 standard from 65 $\mu\text{g}/\text{m}^3$ to 35 $\mu\text{g}/\text{m}^3$. The annual PM2.5 standard was left unchanged, at a value of 15 $\mu\text{g}/\text{m}^3$.

It is expected that U.S. EPA will designate the new 24-hour PM2.5 nonattainment areas by November 2009, and they will become effective April 2010. A SIP revision will be due to U.S. EPA by April 2013 demonstrating an attainment date of April 2015 with a possible extension to April 2020. The modifications made to the 24-hour PM2.5 standard will not affect the 2007 AQMP attainment demonstration. The existing standard of 65 $\mu\text{g}/\text{m}^3$ standard will remain in effect until 2010. This means that the PM2.5 attainment demonstration for the 24-hour standard is for the 65 $\mu\text{g}/\text{m}^3$ standard, not the 35 $\mu\text{g}/\text{m}^3$ standard.

While the 2005 maximum 24-hour average PM2.5 concentration exceeded the 65 $\mu\text{g}/\text{m}^3$ standard, the design value for the Basin based on a three-year average of the 98th percentile observation met the standard. When the 2005 maximum 24-hour average concentration and three-year design value is compared to the new standard 35 $\mu\text{g}/\text{m}^3$, the concentration exceeds the threshold by 279 percent and the three-year design value by 85 percent. The 2005 Basin annual average PM2.5 maximum concentration of 21.0 $\mu\text{g}/\text{m}^3$ was 40 percent above the federal standard (15 $\mu\text{g}/\text{m}^3$) and contributed to a three-year design value of 22.6 $\mu\text{g}/\text{m}^3$ which was 51 percent above the standard. The maximum observed 24-hour average PM10 concentration in 2005 was approximately 80 percent of the federal standard but the three-year average design standard was met.

As projected in 2015, the current 24-hour PM2.5 (65 $\mu\text{g}/\text{m}^3$) and PM10 (150 $\mu\text{g}/\text{m}^3$) and annual PM2.5 standards (15 $\mu\text{g}/\text{m}^3$) will be met. The estimated 2015 three-year design value will exceed the new PM2.5 standard (35 $\mu\text{g}/\text{m}^3$) by 34 percent. The current simulations project a similar profile for particulate air quality in 2020. The projected 24-hour PM2.5 three-year design value is expected to nominally exceed the new PM2.5 standard by 11 percent. While the estimated 2021 design value is projected to be close to the 24-hour standard, additional emissions controls may be required to ensure future year compliance.

2.10.3 CALIFORNIA PM AIR QUALITY STANDARDS

On June 2002, CARB also adopted stricter standards for particulate matter that affect both the coarse as well as fine particulate fraction. The adopted standards reduced the PM10 annual average standard from 30 $\mu\text{g}/\text{m}^3$ to 20 $\mu\text{g}/\text{m}^3$ and retained the 24-hour PM10 standard of 50 $\mu\text{g}/\text{m}^3$. The PM2.5 annual average standard was set at 12 $\mu\text{g}/\text{m}^3$. The California standards are one-third the federal PM10 24-hour standard, and 80 percent of the federal annual PM2.5 threshold. Achieving these standards poses an even greater challenge than meeting the new federal eight-hour ozone and PM2.5 standards.

2.10.4 GREENHOUSE GASES

There is broad scientific consensus that the increased concentrations of greenhouse gases in the atmosphere will lead to global climate change in this century. The industrial

revolution and the increased consumption of fossil fuels (e.g., gasoline, diesel, coal, etc.) have contributed to substantial increase in atmospheric levels of greenhouse gases primarily carbon dioxide (CO₂), methane, nitrous oxide, and hydrofluorocarbons. These gases trap the sun's heat in the atmosphere causing the atmospheric temperatures to rise.

In June 2005, Governor Schwarzenegger signed Executive Order #S-3-05 which established the following greenhouse gas targets:

By 2010, Reduce to 2000 Emission Levels
By 2020, Reduce to 1990 Emission Levels
By 2050, Reduce to 80 percent Below 1990 Levels

These targets were recently codified into the state law through AB32. The emission levels in California were estimated to be 426 million metric tons CO₂ equivalent for 1990, 473 million metric tons CO₂ equivalent for 2000, 532 million metric tons CO₂ equivalent for 2010, and 600 million metric tons CO₂ equivalent for 2020. AB32's goals for emission reductions were estimated to be approximately 59 and 174 million tons CO₂ equivalent by 2010 and 2020, respectively.

Concurrent emission reductions associated with Statewide greenhouse gas programs will be applied toward the long-term reduction targets proposed in the 2007 AQMP for meeting the federal ozone standard by 2024.

2.10.5 ULTRAFINE PARTICLES

In response to the ever-increasing body of research findings pointing to adverse health effects of ultrafine and nanoparticle air pollution that could potentially be significantly greater than the health effects associated with coarse (PM₁₀) and fine particulate (PM_{2.5}), the SCAQMD in recent years began to actively monitor scientific developments in the field of ultrafine particulate matter. In spring 2006, the SCAQMD hosted a three-day conference titled Ultrafine Particles: The Science, Technology, and Policy Issues, with several panels of academia, technology experts, and public policy makers, and more than 400 attendees.

The 2007 AQMP presents background information on ultrafine particles and the state of current knowledge on the subject. Potential control strategies discussed include effectiveness of current controls, improvement of engine combustion systems, use of low-sulfur fuel, reformulation of lubrication oils, and utilization of effective particulate after-treatment devices in conjunction with catalyst technology. A view of ongoing and potential research areas that could facilitate the development of control strategies for ultrafine particles is also included. Lastly, recommendations are made regarding future policy direction and actions.

Currently, it is recognized that ultrafine particulates are predominately formed through combustion processes and the highest concentrations are associated with mobile sources. Furthermore, ultrafine particles have been implicated in adverse health effects

independent of PM mass. Current and future regulatory requirements to reduce engine emissions necessitate the use of particulate filters (with oxidation catalyst coatings) and oxidation catalysts in order to meet the current and future emission standards. However, it is necessary to proceed slowly in establishing regulatory requirements in this new area because: additional health studies will be beneficial to fully understanding the impacts of ultrafine particles; further consideration is appropriate relative to the regulation of ultrafine particles on the basis of number versus mass; and the regulatory action to be taken at the local, state, and federal levels, respectively, will require careful consideration.